Scaffolding & Working at Height Safety Procedure

HEALTH, SAFETY AND ENVIRONMENT PROCEDURE

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## Document Authorization

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<th>Document Type</th>
<th>Security Classification</th>
<th>Document Authority/Owner</th>
<th>Document Custodian</th>
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<tbody>
<tr>
<td>Safety Procedure</td>
<td>Unrestricted</td>
<td>P.O.G.C</td>
<td>HSE</td>
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<th>Document Author</th>
<th>Approved By</th>
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<tr>
<td>HSE-S564392</td>
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<td>HSE-S593443</td>
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**SUGGESTION FORM**
1. INTRODUCTION

Pars Oil and Gas Company (POGC), a subsidiary of National Iranian Oil Company (NIOC), was established in 1998. POGC is a developmental and manufacturing organization that specializes in the fields of engineering and management of development projects, production, operation and integrated management of oil and gas reservoirs. POGC’s mission is to ensure sustainable and preservative production and development of Iran’s oil and gas industry in the areas under its responsibility, development of oil and gas value chain as well as optimization of energy supply processes at national, regional and international levels. POGC is also in charge of development of joint and non-joint oil and gas fields of the country including South Pars, North Pars, Golshan and Ferdowsi.

Aimed at creating superior value and boosting the level of satisfaction of the beneficiaries and with an approach focusing on sustainable, integrated and knowledge-oriented production and development, the company feels committed to comply with national and international requirements, regulations and standards in such areas as quality, safety, as well as occupational and environmental health.

2. PURPOSE

The purpose of this procedure is to set standards to which scaffolds will be erected using sound materials, standards for their safe use, establish inspection parameters and identify co-ordination requirements so as to minimize interface problems.

This procedure is to ensure that all scaffolding activities will be managed safely.

3. SCOPE

To be used as a guideline for all scaffolding erected and working at height safety on the POGC projects.

4. RESPONSIBILITIES

4.1 Site Manager

The Site Manager shall, before erecting scaffolding in any of his work areas carry out the following activities:

Make formal application to HSE department for approval to erect scaffolding by filling out work permit (Doc. No. MA-64-POGC-001), showing type of scaffold to be used, exact location, number of units of scaffold to be erected and the purpose for which it is to be used.

4.2 Scaffold Supervisor

The Scaffold Supervisor will carry out the following activities:
Once he receives the Scaffold Permit, perform permit requirements, he can proceed to erect the scaffolding but only of the type and in the location and quantity requested in the permit.

Once the scaffolding erection is completed, including access ladders, he will attach a Scafftag to each unit with the 'erection and inspection' panel removed (Attachment 4), i.e. with the 'DO NOT USE SCAFFOLD' sign exposed. The Scaffold Permit reference number must be marked on the Scafftag for easy identification.

- As an added precaution, to make it quite clear that the scaffold is not ready for use, he should wrap 'Danger' barrier tape around the bottom section of the scaffold.
- He will then take the Scaffold Permit back to the HSE department and make arrangements for the HSE Scaffold Inspector to inspect the scaffolding.
- If the HSE Scaffold Inspector approves the scaffolding and complete Permit requirements (Approved for Use by Safety Department), he may then insert the 'Erection and Inspection Record' tag (Attachment 4) which the HSE Scaffold Inspector will have completed and signed, into the Scafftag so that the green side of the tag is showing.
- He may then allow workers to work from the scaffolding.
- The Scaffold Supervisor will inspect each and every scaffold unit in his work areas at least once every day and sign the reverse (yellow) side of the Inspection Record (Attachment 4) tag to show that he has done so.
- On the 7th day following the issue of the Scaffold Certificate, the Scaffold Supervisor must reapply for HSE department approval to continue using the scaffolding by submitting a fresh Scaffold Permit.

He Shall carry out the following duties:

- Ensuring that sufficient scaffolding material is ordered to facilitate the progress of the work
- Training scaffolders from individual contractors on the standards of scaffolding be used on the project.
- To familiarize all relative persons regarding scaffolding procedures, lines of communication and responsibilities
- The co-ordination of sequence of scaffolding works for all contractors.
- Establish an organization sufficient to monitor and check scaffolds as they are being erected
- Establish a system for recording the history of scaffolds, from application, erection, certification and dismantling
- Arrange for, and provide adequate training as required.
- Liaise with the engineering group for designing specialist and purpose built scaffolds.
- Prepare with the contractors method statements and task team talks for scaffold erected in potentially hazardous areas e.g. working over water.
4.3 HSE Scaffolding Inspector

The HSE Scaffolding Inspector will carry out the following activities:

- Upon receipt of a Scaffold Permit from a CONTRACTOR, the HSE Scaffolding Inspector will visit the intended location and satisfy himself that the ground conditions are suitable to support scaffolding and that there is sufficient space for the safe erection of the type and quantity of scaffolding requested in the permit.
- He will discuss with the Scaffolding Supervisor the intended use of the scaffolding to be erected and give technical advice and direction as to how the scaffolding is to be built.
- Once satisfied, he will sign specified section (if any) of the Scaffold Permit (Approved for Erection by Safety Department) and allow the Scaffold Supervisor to go ahead with the erection.
- When the Scaffolding Supervisor returns to tell him that the scaffolding erection work is finished, the HSE Scaffolding Inspector will go to the job site with him and carry out a careful and detailed inspection of the scaffold(s).
- If satisfied that the scaffolding has been erected properly and is fit for the use that is intended, he will then fill in the green side of the 'Erection and Inspection Record' tag for insertion into the Scafftag of each scaffold and complete and sign specified section (if any) of the Scaffold Permit (Approved for Use by Safety Department).
- The HSE Scaffolding Inspector will then keep the Scaffold Permit in his records and carry out the daily inspections (Daily Check List) of the Permit after each inspection.

4.4 HSE SUPERVISORS

HSE Supervisors will carry out the following activities:

- While main responsibility for the inspection of scaffolding will rest with the HSE Scaffolding Inspector, HSE Supervisors will carry out a basic inspection of any scaffolding that exists on work areas that they visit.
- These inspections will be carried out in company of a HSE representative.
- They will use a 'Static Scaffolding Inspection Sheet' (Attachment 10) as reference and check the items contained in it.
- If any serious defects to the scaffold structure are found he will instruct the HSE representative to stop the use of the scaffold and Scaffold Supervisor will make the necessary repairs immediately.
- The Erection and Inspection Record tag will be removed from the Scafftag and warning barrier tape wrapped around the bottom of the scaffold to warn workers to stay off it.
- Where possible both the Supervisor and the HSE Scaffolding Inspector will
be called immediately to the scaffold to examine its safety and supervise any necessary repairs or modifications.

- In any case, the HSE representative must inform his Scaffolding Supervisor of the incident and the HSE Supervisor must give a copy of the Static Scaffolding Inspection Sheet as soon as possible.

### 4.5 Scaffolding Erectors

Scaffolding erectors shall take responsibility for all scaffolding being erected until it handed over to the end user. The scaffolding erector should ensure that the following actions are not implemented.

#### Before Starting the Work

- Scaffolds being erected by non competent personnel.
- Experienced foremen not supervising the work.
- Scaffolders not being informed of the purpose for which the scaffold is required.
- User of damaged or out of specification scaffolding materials being used.
- Work commencing without the required permits.
- Work commencing without liaison with the scaffolding supervisor in regard to purpose and loading etc., of the scaffold.

#### During Erection

- Ground having insufficient bearing capacity to support scaffold standard when loaded.
- Insufficient base and sole plates provided.
- Sole plates of an insufficient size
- Standards placed too wide apart and must be vertical.
- Ledgers placed too wide apart and must be horizontal.
- Insufficient bracing.
- Bracing connections not made with load bearing couplers.
- Joints in standards and ledgers not staggered.
- Scaffold unstable.
- Poorly tied in scaffold.
- Fittings over tightened so that threads are strained.
- Timber packing not placed between ends of reveal pins and brickwork.
- The connections not made with right angle couplers.
- Putlogs and or Transoms not fixed with putlog couplers.
- Putlogs positioned with blade vertical.
- Putlogs not properly spaced to support the working platform and or transoms
- Scaffold boards having excessive overhang.
- Uneven working platform.
- Working platform too narrow for the purpose required.
• Guard Rails fixed at wrong height or not fixed at all.
• Toe-boards not fixed.
• Inadequate provision made to prevent stacked materials falling from the scaffold.
• Ladders with broken or damaged rungs, or metal ladders used with distorted parts.
• Ladders too short to provide a safe hand-hold when stepping to or from the top of the ladder.
• Top of the ladder insufficiently fixed to prevent sideways movement.
• Ladder not placed on a firm base and foot of ladder not fixed to prevent slipping.
• Scaffold boards on rungs.
• Wooden ladders painted.
• Other building workers allowed on to scaffold during erection.

**During & After Dismantling**

• Personnel being allowed to use scaffolds whilst being dismantled.
• Tubes, fittings and boards being dropped to the ground.
• Tubes, fittings and boards not being inspected after use.
• Defective tubes, fittings and boards not being taken out of use.
• Fittings not serviced.
• Ladders not checked for damage.

**4.6 Scaffolding Users**

After completion including inspection and acceptance of any scaffold and hand-over of it to the users, it may be used by a variety of personnel for general working. During this period of working, the scaffold may be subjected to many load variations and possible misuse or abuse. It is therefore important that the persons using the scaffold are aware of their responsibilities for the correct use and upkeep of the scaffold.

• The user ordering scaffolding must ensure that the scaffolding erectors are made fully aware of the requirements and use for which the scaffold is required. Designation of “Type” of scaffolding, together with any special requirements should always be given.

• The user must ensure that the designated site for erection of scaffold is cleared and suitable for the erection of scaffolding and that the building and/or the foundations are suitable for loading applied from the scaffold and, where applicable, obtain all necessary permits.

• When the scaffolding work is completed, the user should satisfy himself that the scaffold is in accordance with his requirements and that all materials have been erected in a safe and secure manner. For this purpose the user will obtain a standard hand-over certificate from the scaffolding erectors for all scaffoldings which must have been inspected and accepted by a scaffolding officer prior to use.
• The scaffold must be inspected weekly by the scaffolding supervisor and the results of that inspection recorded in an Inspection Register.
• Minimum clear pathways must be maintained on working platforms.
• Up to 5 boards wide working platform clear-way 432mm minimum.
• As per 6 boards wide working platform clear-way 635mm minimum.
• No alterations, removal of ties, bracing’s, boards, toe-boards or guardrails etc., can be made by persons other than the scaffolders.
• The scaffold should only be used for the purpose for which it was supposed to be erected.
• Any event or circumstances that may affect the strength or stability of the scaffold, such as damage from vehicles, undermining, trench excavation etc., must be reported to the scaffolding erectors or contractor immediately.

4.7 HSE team

• The HSE department is authorized to control the access to the scaffolding area.
• The scaffolding supervisor and the HSE scaffolding officer have the authority to issue scafftags.
• The safety officer and the scaffolding contractors shall ensure that the scaffolding in progress meets the regulations and requirements.
• Training will be at the discretion of the scaffolding supervisor and dependent on the abilities and competence of the individual scaffold.

5. PROCEDURE

5.1 GENERAL

Every contractor and every employer of workmen has a legal and contractual responsibility to ensure that each place at which his men work is safe and that it remains safe so long as men work there. Similarly, each supervisor is responsible for ensuring that every man working under his direction or control has a safe working place and a safe means of getting to and from every working place.

Where work cannot safely be done on the ground or from part of a building or permanent structure, scaffolds, ladders, or other means of support shall be provided and properly maintained.

5.2 Prevention of Falls

Permanent decking, parts of a structure, walkways, footbridges, etc., which men use in the course of their work or for a permanent or temporary access, shall be provided with a guardrail system and toe boards (permanent or temporary) at all
edges from which men, tools, or materials could fall 1.8 meters (6 feet) or more. Holes and gaps shall be guarded or securely covered. Stairs (permanent or temporary) shall have all treads properly secured and shall be fitted with handrails throughout their length and conform to the Uniform Building Code.

5.3 Ramps

Where the slope of a ramp exceeds 1 vertical to 4 horizontal, the ramp shall be fitted with stepping cleats at 0.3 meter (1 foot) intervals. When a ramp is to be used by the general public, its slope shall not exceed 1 vertical to 4 horizontal. Handrails shall be provided.

5.4 Falling Material

Where there is danger of men being struck by falling material, protective coverings shall be erected or No. 18 gauge wire, 1/2 inch mesh or equivalent, shall be securely fixed between the toe board and mid rail to prevent falling objects.

5.5 Hot Surfaces

Suitable precautions shall be taken to prevent men coming into contact with any hot surface.

5.6 Slipping and Tripping

Scaffolding contractors are responsible for maintaining good housekeeping to prevent slipping, tripping, and falling. Oil spills, mud, scrap, and other debris must be cleared up immediately. Men shall not be permitted to walk or work on steel work or other surfaces on which paint or cement wash is still wet.

5.7 Roof Work

Where work is done on or from the roof of a building or structure, or where men have to cross, work on, or work from fragile roofs or surfaces, adequate protection in the form of crawling boards, roof ladders, or other suitable covering must be provided to prevent men and materials falling from or through the roof. Temporary guardrails shall be placed to prevent workers from falling. If roof work is accomplished on pitched roofs with a slope greater than 1:4, workers shall be equipped with safety belts that are securely anchored to the structure. During storms or high winds, workers shall not be working on a roof or scaffold that is exposed to the weather.
5.8 Insecure Structures

Unstable or weak structures shall be supported by guys, stays, supports, or other fixings where necessary. If work being done is likely to reduce the stability of an existing structure or building, bracing or other means of support shall be used. Unstable structures shall not be left unsupported over night.

No wall sector which is more than one story in height, shall be permitted to stand alone without lateral bracing, unless such wall was originally designed to do so and is in a safe condition to be self-supporting. All walls shall be left in a stable condition at the end of each shift by bracing support jacks, timbers and/or guy-wired, taking wind force and storm conditions into consideration.

5.9 Work Over Water

Where men work on, over or near water, a guardrail system and toe boards, fencing or other suitable barriers shall be provided for the protection of the worker.

Wherever the provision of a guardrail system and toe boards, fencing or other suitable barriers is impracticable, or if for any reason men are outside the protection of these safeguards, suitable life vests shall be worn and a safety belt or harness securely fixed to a drop line.

Approved rescue equipment that meets the requirements of PR-75-POGC-001 in the form of life rings with life lines, etc.; where necessary, a suitably equipped rescue boat shall be readily available, and properly maintained. Men shall be thoroughly trained in the use of all protective and rescue equipment, first aid and cardiopulmonary resuscitation (CPR).

5.10 Ladders and Stepladders:

5.10.1 Ladders

The safety of a ladder depends on four important factors: selection, condition, position and use. Ladders shall comply with the referenced ANSI or equivalent codes.

A ladder must be of the proper length for the job to be done. If it is to be used for access or as a working place, it shall rise to a height of 36 inches to 42 inches above the landing place or above the highest rung to be reached by the feet of the man using the ladder.

Metal ladders, ladders with metal reinforced side rails, and ladders which are wet shall not be used near electrical equipment with exposed live conductors. Such
Ladders shall have a warning notice attached to guard against use near electrical equipment.

Aluminum ladders shall not be used where there is a likelihood of contact with materials harmful to aluminum, such as caustic liquids, damp lime, wet cement, etc.

Each ladder shall be examined before use. Those with split or broken side rails, missing, broken, loose, decayed or damaged rungs or cleats, or with other faulty equipment shall be tagged and removed from service.

Rungs shall be properly mortised into side rails. Cleats shall be inset by 2.25 centimeters (7/8 inch), or filler blocks used on the side rails between the cleats. Cleats shall be uniformly spaced 30.5 centimeters (1 foot) between centers.

The side rails of a ladder shall be equally supported on a firm level surface. Boxes, blocks, barrels, etc. shall not be used as a means of support. The area at the base of a ladder must be kept clear. Ladders shall not be used in a horizontal position as platforms, runways or scaffolds.

Ladders shall not be supported on their rungs or cleats. Rungs or cleats shall not be used to support planks.

Whenever possible, ladders shall be set at an angle of 75° to horizontal ground (i.e., one meter out to four meters up).

Metal reinforcing shall be on the underside of the rungs and where reinforcing is on only one side of the side rails, that too shall be on the underside.

Both side rails of a ladder shall be evenly supported at the upper resting place. Side rails must be securely tied off to prevent movement. Where secure fixing is impracticable, other measures must be taken to prevent movement by securing at the base, using side guys, or stationing a man at the base. It must be understood, however, that a man stationed at the base will be unable to control a ladder more than 6 meters (20 feet) in length.

Where there is a possibility of a ladder being struck by moving vehicles or equipment, a man should be placed on guard or a space at the base should be securely fenced off. If a ladder is erected close to a doorway, the door should either be locked, shut, or be secured in the open position with a man on guard or properly barricaded.

Ladder landing places shall be provided at least every 9 meters (30 feet) of height and shall be fitted with a guardrail system and toe boards. Holes in decking through which ladders pass shall only be enough to permit passage of the man using the ladder.

A ladder should always be placed so that there is space behind each rung or cleat for a proper foothold. There should be no obstruction in the way of a man's foot, particularly at the landing platform. Here the rung or cleat should be level with the platform.

Where ladders have to be suspended, both side rails shall be lashed top and bottom so as to provide equal support. Where long ladders are used, they shall also be lashed at the center to prevent lateral movement.
Where an extension ladder is used fully extended, the minimum overlap depends on the extension ladder length, and overlap should be as follows (examples):

9.75 to 10.97 meters (32 to 36 feet) = 1.22 meters (4 feet) overlap

10.97 to 14.63 meters (36 to 48 feet) = 1.52 meters (5 feet) overlap

Splicing or lashing ladders together shall not be permitted.

Before mounting a ladder, personnel shall check their shoes for freedom from grease, oil or mud. They shall always step through, not around, the rail extensions at the top of the ladder.

Single rung and single cleat ladder should be used by only one man at a time. When ascending or descending personnel shall face the ladder and keep both hands on the ladder. Personnel shall not run up or down or slide down a ladder at any time. The width of single cleat ladders shall be at least 38.1 centimeters (15 inches) but not more than 50.8 centimeters (20 inches) between rails at the top.

Men ascending or descending ladders shall not carry tools and materials in their hands. Tools may be carried in pockets or on special belts provided there is no risk of injury and movement is not impaired. Materials shall be raised or lowered using a hand line after being securely tied or placed in a basket.

A man working on or from a ladder must always have a secured handhold and both feet on the same rung or cleat. If the work to be done requires the use of both hands, a safety belt is required, securely fixed to a drop line (life line). Only one person shall be on a ladder at a time.

Job-made ladders shall be constructed for intended use. If a ladder is to provide the only means of access or exit from a working area for 25 or more employees, or if simultaneous two-way traffic is expected, a double cleat ladder shall be installed.

Double cleat ladders on POGC construction sites shall not exceed 4.5 meters (15 feet) in length.

Single cleat ladders shall not exceed 4.5 meters (15 feet) in length between supports (base and top landing). If ladders are to connect different landings, or if the length required exceeds this maximum length, two or more separate ladders shall be used, offset with a platform between each ladder. A guardrail system and toeboards shall be erected on the exposed sides of the platforms.

5.08 by 10.16 centimeters (2 by 4 inches) lumber shall be used for side rails of single cleat ladders up to 4.5 meters (15 feet) long.

5.08 by 10.16 centimeters (2 by 4 inches) lumber shall be used for side and middle rails of double cleat ladders up to 3.6 meters (12 feet) in length; 5.08 by 15.24 centimeters (2 by 6 inches) lumber for double cleat ladders from 3.6 by 4.5 meters (12 to 15 feet) in length.

Wood cleats shall have the following minimum dimensions when made of woods that meet ANSI requirements for ladders:
Table 1

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<th>LENGTH OF CLEAT</th>
<th>THICKNESS</th>
<th>WIDTH</th>
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<tr>
<td>Up to and including 50.8 cm (20 inches)</td>
<td>1.9 cm (.75 in)</td>
<td>7.62 cm (3 in)</td>
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<tr>
<td>Over 50.8 cm (20 in.) and up to and including 76.20 cm (30 in.)</td>
<td>1.9 cm (.75 in.)</td>
<td>9.52 cm (3.75 in.)</td>
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Cleats may be made of species of any other group of wood provided equal or greater strength is maintained.

Cleats shall be inset into the edges of the side rails one-half inch, or filler blocks shall be used on the rails between the cleats. The cleats shall be secured to each rail with three 10d common wire nails or other fasteners of equivalent strength. Cleats shall be uniformly spaced, 30.48 centimeters (12 inches) between centers.

Metal ladders shall not be used for work on electrical systems unless the ladders are specifically designed for that application.

5.10.2 Stepladders

Generally, the foregoing remarks on selection, condition and use of ladders apply equally to stepladders. The following requirements also apply:

To ensure stability, stepladders shall be spread to their fullest extent limited by manufacturer's braces when in use. Whenever possible, they should be placed at right angles to the work with either the front or back facing the work.

Do not stand, climb or sit on the stepladder top, pail shelf, braces or back section.

Ladders and stepladders shall be maintained in good condition at all times. Joints shall be tight, all hardware and fittings shall be securely attached, and movable parts shall operate freely without binding or undue play.

Ladders and stepladders must not be painted.

Where a ladder is carried by one man, the front end should be kept high enough to clear men's heads and special care shall be taken at corners and blind spots.
5.11 Scaffolding Components

All scaffold structures shall be erected with metal components approved per ANSI requirements or equivalent. Scaffolds shall be stored to prevent damage and to permit easy access for use. Scaffold erection plans (drawings) shall be submitted to HSE Department for review prior to men being allowed to work on the scaffold.

5.11.1 Tubing

Ordinary scaffold tubing is 4.8 centimeters (1-29/32 inches) in diameter and nominal wall thickness 0.4 centimeter (5/32 inch) and is referred to as two-inch nominal diameter tubing. It is mild steel and normally supplied in lengths of 6.4 meters (21 feet). Tubes must meet ANSI or equivalent requirements and must be free from cracks and surface flaws, laminations, excessive rust and other defects. The ends shall be cut square and cleanly. A tube shall not deviate from a straight line by more than 1/600 of its length measured at the center of the tube length.

5.11.2 Aluminum Tubing

Although the aluminum tubing is dimensionally interchangeable with steel tubing, it must not be used in the same structure; the difference in the elastic modulus of the two materials results in greater deflection in aluminum tubing for the same loading conditions.

Aluminum tubing shall not be used where there is likelihood of contact with materials harmful to aluminum such as caustic liquids, damp lime, wet cement and sea water.

5.11.3 Fittings

All fittings (couplers, clamps, etc.) shall be of a metal type approved to ANSI or equivalent requirements. They shall be examined regularly and care must be taken to ensure that moving parts are sound and well lubricated and that threads are not stripped.

5.11.4 Typical Scaffold Fittings

**Base Plate:** A 15 centimeter (6 inch) by 15 centimeter (6 inch) steel plate greater than 0.64 centimeters (1/4 inch) thick providing a flat bearing surface for load distribution from posts. It has an integral spigot and fixing holes for use with sills.

**Screw jacks:** Used for compensating variations in ground levels.

**Standard Coupler:** Also known as a Right Angle or 90° Coupler. A load bearing coupler used for connecting two tubes together at right angles.

**Adjustable Coupler:** Used for connecting two tubes together at any angle through 360°. Not to be used where a load bearing standard coupler is required.
**End-to-End Coupler:** Also known as a Sleeve Coupler. Used for connecting two tubes end-to-end.

**Reveal Pin:** Inserted into the end of a tube and adjusted to form a rigid horizontal or vertical member between two opposing surfaces. It forms a solid anchorage to which a scaffold can be tied.

### 5.11.5 Planks

Planks shall be of rough timber and graded as scaffold planks without defects (2” x 9”), 5 centimeters (2 inches) thick by 23 centimeters (9 inches) wide, and shall conform to the following specifications:

- All planking shall be Scaffold Grade to ANSI requirements.
- On the face of the plank, the ends shall not be split up more than 30.5 centimeters (1 foot), without fixed banding or the end bolted through.
- On the face of the plank, not more than one third the width in any one place shall be knot wood.
- On the edge of the plank, not more than half the depth shall be knot wood.
- On the edge of the plank, the grain shall not cross from face-to-face within a distance of less than 30.5 centimeters (1 foot).
- From end-to-end, the plank must not be twisted by more than 1.3 centimeters (1/2 inch).
- Scaffold planks shall meet the loading requirements of Table 2.

Planks shall not be painted or treated in any way that would conceal defects. Planks which are split, decayed or warped shall not be used, but the parts affected may be cut off to produce shorter planks with the ends banded or bolted through.

Planks should be stacked on a suitable foundation. Where the height of a stack exceeds 20 planks, measures should be taken to tie or bond succeeding layers.

Planks should not be stood on end unattended.

Scaffold planks shall not be used for shuttering for concrete, shoring for trenches, or as sills for scaffolding. Planks shall be inspected for defects, including decay, prior to each use.

The design working load of each platform unit (i.e., plank) shall be capable of supporting without failure one or more 91 kg (200 lb) person with 22.7 kg (50 lb.) of equipment.

Platform units rated for one person capacity shall be designed and constructed to carry 113.6 kg (250 lb.) at the center of the span.

Platform units rated for two persons shall be designed and constructed to carry a working load of 227 kg (500 lb.) : 113.6 kg (250 lb.) placed at 0.46 meters (18 inches) to the left and right of the center of the span.
Platform units rated for three persons shall designed and constructed to carry a working load of 341 kg (750 lb.) : 113.6 kg (250 lb.) placed at 0.46 meters (18 inches) to the left and right of the center of the span, and at the center of the span. Light, medium and heavy duty uniformly distributed load requirements shall be 25, 50 and 75 pounds per square foot respectively. Greater uniformly distributed loads shall be specially designed.

### Table 2: WOOD SCAFFOLD PLANK LOADING CHART/Permissible Span(ft) (ANSI A10.8-1988)

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<thead>
<tr>
<th>Loading Condition</th>
<th>Douglas Fir or Southern Pine</th>
<th>Spruce Rough Sawn</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2 in x 10 in</td>
<td>1-7/8 in x 9-7/8 in</td>
</tr>
<tr>
<td>Nominal or</td>
<td>or</td>
<td></td>
</tr>
<tr>
<td>One worker or medium-duty</td>
<td>1-1/2 in x 9-1/4 in Actual</td>
<td>2 in x 9 in</td>
</tr>
<tr>
<td>Two workers or heavy-duty</td>
<td>10 ft</td>
<td>8 ft</td>
</tr>
<tr>
<td>Three workers</td>
<td>8 ft</td>
<td>7 ft</td>
</tr>
<tr>
<td></td>
<td>5 ft</td>
<td>5 ft</td>
</tr>
</tbody>
</table>
Figure 1: Adjustable Coupler

(Bearers, Runners)

(Braces Only)

PIVOTING EYE BOLT

90°

TYPICAL END TO END COUPLER

SCREWJACK

TYPICAL REVEAL PIN

TYPICAL BASE PLATE

scaffold fittings
5.12 Requirements Common to All Scaffolding

5.12.1 Foundations

A sound base is essential; therefore, the ground or floor on which a scaffold is going to stand must be carefully examined. Sand or made-up ground may need compacting to ensure there are no cavities. Such bases as floors, roofs, etc. may need shoring from underneath. Scaffolds, including components, shall be capable of supporting without failure at least 4 times the maximum intended load.

Timber sills at least 23 centimeters (9 inches) wide by 3.8 centimeters (1-1/2 inches) thick (not scaffold planks) will be required to spread the load on sand, made up ground, asphalt pavement, wooden floors, and slippery surfaces. A sill shall extend under at least two posts.

Where scaffolding is erected on a solid bearing such as rock or concrete, small timber pads may be used in place of sills and nailed to prevent the base plates sliding off. Concrete blocks, barrels, and other loose or unsuitable material shall not be used for the construction or support of scaffolding.

If used to compensate for variations in ground level, the screw jack shall not be adjusted to more than two-thirds of the total length of the thread. The base plate shall be of a type approved for supporting scaffolding posts. (See manufacturer's specifications.)

5.12.2 Posts

Posts shall be pitched on 15 centimeters (6 inches) by 15 centimeters (6 inch) steel base plates and at least 0.64 centimeter (1/4 inch) thick. Joints in posts should be staggered, i.e., joints in adjacent posts should not occur in the same lift. All posts shall be vertical.

The inner row of posts shall be placed as close as possible to the face of the building or structure. To avoid projections, the posts may be up to 41 centimeters (16 inches) away from the wall or structure as necessary, provided that, where there is room to do so, the gap between the wall or structure and the inner posts shall be closed with planks on extended board bearers. The outer row of posts shall be positioned from the inner row of posts depending on the load requirements of the scaffold, and the working platform shall be fully decked out.

5.12.3 Runners

Runners shall be securely fixed to posts with standard couplers and shall be horizontal. Joints in runners should be staggered, i.e., joints in adjacent runners should not occur in the same bay. Runners should be secured end-to-end by sleeve couplers, not by joint pins.

Runners shall be vertically spaced no more than 2.0 meters (6 feet, 6 inches) to give adequate headroom along the platforms.
5.12.4 Bearers

Bearers should be installed between posts and securely fixed to the posts bearing on the runner coupler and secured with standard couplers. When coupled directly to the runners, the coupler must be kept as close to the posts as possible. These bearers must remain in position as they are a structural part of the scaffold.

5.12.5 Board Bearers

Board bearers shall be installed between bearers to accommodate differences in plank lengths. Board bearers shall be secured to the runners between bearers where necessary to support platform units (planks). These may be removed when no longer required to support platform units.

5.12.6 Bracing

Cross bracing shall be installed across the width of the scaffold at least every third set of posts horizontally and every fourth runner vertically. Such bracing shall extend diagonally from the inner and outer runners upward to the next outer and inner runners. These braces should be fixed to the runners with standard couplers as close to the posts as possible. Where such a fixing is impracticable, adjustable couplers may be used to fix the braces to the posts.

Longitudinal diagonal bracing shall be installed at approximately 45-degree angle from near the base of the first outer post upward to the extreme top of the scaffold. Where possible, such bracing shall be duplicated at every fifth post. On short but high runs, diagonal bracing shall be installed at an angle of 45 degrees from the base of the first outer post to the last outer post and shall alternate directions to the top of the scaffold. When bracing cannot be attached to the posts, this bracing may be attached to the runners, as close as possible to the posts. Only standard couplers or adjustable couplers may be used. Joints in braces shall be made with end-to-end or parallel couplers.

Temporary rakers (inclined load-bearing tube supports) brace the scaffold against the ground when setting out. These rakers are replaced by permanent braces when the scaffold has been plumbed, leveled and tied. Rakers must be secured with proper couplers at the scaffold and coupled to a ground stake.

5.12.7 Ties

It is essential that all scaffolds, with the exception of certain tower and mobile scaffolds, be securely tied to the building or structure throughout their length and height to prevent movement of the scaffold either towards or away from the building or structure. This should be done by connecting a tie tube to both runners or posts and coupling this to a two-way tie or column box tie assembly.

Where the foregoing is impracticable, tubes may be securely wedged between opposing surfaces on the building or structure by the use of reveal pins and coupled to the tie tubes. Where reveal ties are used, they shall not exceed 50% of the total number of ties. Two-way
ties or column box ties shall be evenly distributed over the scaffold area. To ensure the security of reveal ties, it is necessary to check frequently for tightness.

Ties shall occur at the top of the scaffold and at least every 7.9 meters (26 feet) vertically and 9.1 meters (30 feet) horizontally and at each end of the scaffold. All tie assembly connections shall be made with standard couplers.

5.12.8 Platform Units
All platform units (i.e., planks, fabricated decks, etc.) shall be closed planked with, whenever practicable, each plank resting on at least three supports. Planks shall extend over their end supports by not less than 15 centimeters (6 inches) and not more than 30.5 centimeters (12 inches).

Supports for scaffold planks shall be spaced with due regard to the nature of the platform and the load it will bear. Except on platform units adjacent to the surface of a cylindrical or spherical structure, planks shall be laid flush.

Planks shall be secured in position to prevent displacement by high winds.

Adequate space for men to pass in safety shall be provided and maintained wherever materials are placed on platform units or if any higher platform is erected thereon.

Platform units shall be kept free of unnecessary obstructions, materials, and projecting nails.

Platform units which have become slippery with oil or any other substance shall be cleaned, or otherwise removed and replaced.

Slopes in platform units shall not exceed 1 vertical to 4 horizontal and stepping cleats at 0.3 meter (1 foot) intervals shall be provided.

All platform units shall be closed planked for the full width of the scaffold structure.

5.12.9 Guardrail Systems and Toe boards
Guardrail systems (consisting of top rails and mid rails) and toe boards shall be installed at all open sides and ends of all scaffolds and supports on no more than 3-meter (10-foot) centers from which men or materials could fall a distance of more than 1.8 meters (6 feet). Top rails shall be no less than 0.91 meter (36 inches) and no more than 1.14 meters (45 inches) above the working surface; mid rails shall be installed equidistant between the working surface and the top rail. Toe boards shall not be less than 10 centimeters (4 inches) in height by 2.5 centimeters (1 inch) thick. Guardrail systems and toe boards shall be securely fixed to the inside of posts to withstand a lateral thrust of 200 pounds.

Landings: Safe landings shall be provided at the top of all ladders. Rings shall be eliminated above the landing level, and side rails shall extend 36 to 42 inches above the landing for mounting and dismounting. Where multiple ladders are required, solidly decked platforms shall be provided. Guardrails, intermediate rails and toe boards shall be erected on the outside edges and exposed sides of the platform.

5.12.10 Access
Access to a working platform is best achieved by providing a separate ladder tower or a cantilevered access platform so as not to obstruct the working platform and to minimize the
risk of persons falling through gaps in the guardrail system or platform units. Access must be provided to working platforms.

5.12.11 Scaffold Ladders

Scaffold ladders provide the means of access and egress for scaffolds. They can generally be classified as follows:

5.12.11.1 Portable Straight and Extension Ladders
A straight ladder is a portable ladder that only consists of one section which determines its overall length. It cannot support itself or be adjusted in length.
An extension ladder is a portable ladder that cannot support itself but can be adjusted in length. It consists of two or more sections which are arranged to permit length adjustment. Its overall length is the sum of the length of all its sections measured along the side rails.
Portable straight and extension ladders shall have a firm base and be positioned with a slope of 1:4.

5.12.11.2 Vertical Ladder
A vertical ladder is a type of fixed ladder which is permanently attached to the horizontal or vertical components of a scaffolding.
The main criteria to consider in the use of a vertical ladder is clearance. The following clearance guidelines shall be used.

General : Safe clearances shall be maintained to prevent workers from bumping into, or snagging onto, projecting objects while ascending or descending the ladder.

Climbing Side : Ladders shall have a minimum clear perpendicular distance of 30 inches from the rungs to the nearest projecting object on the climbing side. When unavoidable obstructions are encountered, the minimum clearance distance may be reduced to 24 inches if deflector plates are provided.

Back Side Of Ladder : The perpendicular distance from the face of the rung on the climbing side to the nearest fixed object on the back side of the ladder shall not be less than 10 inches. When unavoidable, horizontal obstructions (e.g. beams, pipes, etc.) are encountered, the vertical toe clearances specified in the following sections, shall apply.

Side Clearance : The minimum clear distance to the nearest fixed object shall be 15 inches on each side of the centerline of single rung ladders.
**Vertical Clearance** : The minimum vertical toe clearance from horizontal obstructions shall be 1 1/2 inches below and 4 1/2 inches above the top edge of the rung.

**Multiple Ladders** : When two or more separate ladders are used with a landing platform, the side-step distance shall be a minimum of 15 inches from the centerline of the upper ladder to the near side of the lower ladder.

### 5.12.12 Workmanship

Scaffolding shall be erected, altered, and dismantled by experienced men working under the direction of a competent supervisor.

Posts shall be set accurately in place and checked vertically by using a spirit level or by using vertical lines on the building or structure.

Scaffolding couplers should be tightened with proper scaffolding spanners. The use of an ordinary spanner or tool giving greater leverage could damage the screw threads and render the coupler unserviceable.

Scaffolding materials shall not be thrown or dropped from heights.

### 5.12.13 Inspections

All scaffolds shall be inspected regularly by a competent Supervisor and after adjustments, modifications, adverse weather conditions, etc. Erected scaffolds and platforms should also be inspected continuously, by those using the scaffold, to insure that the scaffold has not been altered and is in a safe working condition.

### 5.13 Tube and Coupler Scaffolds

(Tube and Coupler Construction - Figure 3)

#### 5.13.1 Independent Tied Scaffold

An independent tied scaffold (also commonly known as a double pole scaffold) consists of a double row of posts connected together longitudinally with runners and with bearers at right angles to the runners. Braces and ties are essential for stability. Independent tied scaffold is the most common form of tube and coupler scaffolding and is divided into three groups.

In **POGC** the height limitation of the tube and coupler scaffold shall not exceed 12.2 meters (40 feet) unless a scaffold plan proposing to use such a scaffold at a greater height has been reviewed by the HSE Department.

1. Light Duty: for painting, cleaning, etc.
2. Medium Duty: when materials are deposited on the platforms.
3. Heavy Duty: where the deposited material is of a more substantial nature.
5.13.2 Light Duty Tube and Coupler Scaffolds

5.13.2.1 Design, Loading and Dimensions

A light duty tube and coupler scaffold can have up to three working platforms in use at any one time, and the maximum distributed load on the platform shall be 1.2 kPa (25 lb./sq. ft) with posts 3.05 meters (10 feet) apart longitudinally and 1.83 meters (6 feet) transversely.

<table>
<thead>
<tr>
<th>TABLE 3: TUBE AND COUPLER SCAFFOLDS–LIGHT DUTY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uniformly distributed load</td>
</tr>
<tr>
<td>Post Spacing (longitudinal)</td>
</tr>
<tr>
<td>Post Spacing (transverse)</td>
</tr>
</tbody>
</table>

Reference: CFR 1910.28

5.13.2.2 Platform

The platform between posts should be decked out with 23 centimeters (9 inches) wide by 5.1 centimeters (2 inches) thick planks. Bearers may be cantilevered for use as brackets to carry not more than two planks between the building and inner post.

5.13.2.3 Limitations

Light duty tube and coupler scaffolds erected in accordance with these directions may be used up to a maximum height of 38.1 meters (125 feet) and limited to a uniformly distributed load of 25 lb./ft$^2$. Light duty tube and coupler scaffolds departing from these directions shall be specially designed or designed to a higher rating such as medium or heavy duty.

5.13.3 Medium Duty Tube and Coupler Scaffold

5.13.3.1 Design, Loading, and Dimensions

A medium duty tube and coupler scaffold may have up to two working platforms in use at any one time. The maximum distributed load on each platform shall not exceed 2.39 kPa (50 lb./sq. ft) with posts not more than 2.4 meters (8 feet) apart longitudinally and 1.83 meters (6 feet) transversely.
**TABLE 4: TUBE AND COUPLER SCAFFOLDS—MEDIUM DUTY**

<table>
<thead>
<tr>
<th>Uniformly distributed load</th>
<th>Not to exceed 50 p.s.f.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post Spacing (longitudinal)</td>
<td>8 ft. 0 in.</td>
</tr>
<tr>
<td>Post Spacing (transverse)</td>
<td>6 ft. 0 in.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Working Levels</th>
<th>Additional Planked Levels</th>
<th>Maximum Height</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>6</td>
<td>125 ft</td>
</tr>
<tr>
<td>2</td>
<td>0</td>
<td>78 ft. 0 in.</td>
</tr>
</tbody>
</table>

Reference: CFR 1910.28

5.13.3.2 Platform

The platform between posts should be decked out with 23 centimeters (9 inches) wide by 5.1 centimeters (2 inches) thick planks. Bearers may be cantilevered for use as brackets to carry not more than two planks between the building and inner post.

5.13.3.3 Limitations

Medium duty tube and coupler scaffolds erected in accordance with these directions may be used up to a maximum height of 38.1 meters (125 feet) and limited to a uniformly distributed load of 50 lb./ft². Medium duty tube and coupler scaffolds departing from these directions shall be specially designed or designed to a higher rating such as heavy duty.

**Bearers**: Bearers on medium duty tube and coupler scaffolds shall be 6.35 centimeters (2.5 inches) outside diameter steel tube and of nominal wall thickness of 0.4 centimeter (5/32 inch).

5.13.4 Heavy Duty Tube and Coupler Scaffolds

5.13.4.1 sign, Loading and Dimensions

A heavy duty tube and coupler scaffold has one working platform with a maximum distributed load of 3.6 kPa (75 lb./sq ft) on the platform. The posts shall be no more than 2.0 meters (6 feet, 6 inches) apart longitudinally and 1.8 meters (6 feet transversely).
TABLE 5: TUBE AND COUPLER SCAFFOLDS--HEAVY DUTY

<table>
<thead>
<tr>
<th>Uniformly distributed load</th>
<th>Not to exceed 75 p.s.f.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post Spacing (longitudinal)</td>
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</tr>
<tr>
<td>Post Spacing (transverse)</td>
<td>6 ft. 0 in.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Working Levels</th>
<th>Additional Planked Levels</th>
<th>Maximum Height</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>6</td>
<td>125 ft.</td>
</tr>
</tbody>
</table>

Reference: CFR 1910.28

**Platform**: The platform between the posts shall be decked out with 23 centimeters (9 inches) wide by 5.1 centimeters (2 inches) thick planks.

**Limitations**: Heavy duty tube and coupler scaffolds erected in accordance with these directions may be used up to a maximum height of 38.1 meters (125 feet). Heavy duty tube and coupler scaffolds departing from these directions shall be specially designed.

**Bearers**: Bearers on heavy duty tube and coupler scaffolds shall be 6.35 centimeters (2.5 inches) outside diameter steel tube and be of nominal wall thickness 0.4 centimeter (5/32 inch).

5.14 Personal Protective Equipment

(Refer to “Personal Protective Equipment “procedure Doc.No PR-75-POGC-001)

All personnel involved with the construction of scaffolding must be provided with and wear "Standard PPE".

Contractors should proper suitable and high quality personal protective equipment for all workers.

5.14.1 HEAD PROTECTION

Protecting employees from potential head injuries is a key element of any safety program. A head injury can impair an employee for life or it can be fatal. Wearing a safety helmet or hard hat is one of the easiest ways to protect an employee’s head from injury. Employers must ensure that their employees wear head protection if any of the following apply:

- Objects might fall from above and strike them on the head;
- They might bump their heads against fixed objects, such as exposed pipes or beams; or
- There is a possibility of accidental head contact with electrical hazards

Some examples of occupations in which employees should be required to wear head protection include construction workers, carpenters, electricians, linemen, plumbers and pipe fitters, timber and log cutters, welders, among many others. Whenever there is a danger of objects falling from above, such as working below others who are using tools or working under a conveyor belt, head protection must be worn. Head protection that is either too large or too
small is inappropriate for use, even if it meets all other requirements. Protective headgear must fit appropriately on the body and for the head size of each individual.

5.14.2 Safety harness
Safety harness systems would be an acceptable control solution in the following situation when erecting or dismantling scaffolds:

- On hung scaffolds, where the scaffold is constructed from top to bottom and there is nothing for the scaffolder to strike below in the event of a fall.
- On cantilevered needles (for the erection of the first lift and later for dismantling that lift) and for decking between the needles.
- When attaching and removing spurs that project from the supporting scaffold or supporting structure.
- When fixing and removing trolley tracks on suspension rigs. (A trolley track is a suspended rail that supports and guides trolleys for swing stages, work cages, boatswains chairs and other types of suspended scaffolding).

NOTE: If harness systems are used, in all instances a scaffolder must not be exposed to a fall prior to being securely connected to, or after being disconnected from the anchorage point. The use of a safety harness as a fall injury prevention system has limited practical application for the construction of scaffolds. A harness should not be used where:

- It is possible for scaffolders to hit an object prior to their fall being arrested.
- Its use would restrict the scaffolder free movement so as to increase the risk of sprain or strain injuries.
- Its use would present a risk of scaffold components becoming entangled or unbalanced during handling.
- There is no adequate and correctly positioned anchorage for lanyards or inertia reels.

NOTE: safety harness should not be used in the erection and dismantling of normal standing scaffolds.

Lifelines used with personal fall arrest system shall meet these requirements:

- Fasted to fixed and safe point of anchorage
- Independent of the scaffold
- Protect from sharp edges and abrasion

Note: Employees who work on scaffolds shall provide with appropriate safety harness against fall injuries which will not interfere their works and will be comfortable and no restricting.

5.14.3 Safety shoes
Employees who face possible foot or leg injuries from falling or rolling objects or from crushing or penetrating materials should wear protective footwear. Also, employees whose work involves exposure to hot substances or corrosive or poisonous materials must have protective gear to cover exposed body parts, including legs and feet. If an employee’s feet may
be exposed to electrical hazards, non-conductive footwear should be worn. On the other hand, workplace exposure to static electricity may necessitate the use of conductive footwear. Have impact-resistant toes and heat-resistant soles that protect the feet against hot work surfaces common in roofing, paving and hot metal industries. The metal insoles of some safety shoes protect against puncture wounds. Safety shoes may also be designed to be electrically conductive to prevent the buildup of static electricity in areas with the potential for explosive atmospheres or nonconductive to protect workers from workplace electrical hazards.

5.14.4 Hand and Arm Protection
Contractors must ensure that employees wear appropriate protection clothing. Protective equipment includes gloves, finger guards and arm coverings or elbow-length gloves.

5.14.5 Protective Gloves
There are many types of gloves available today to protect against a wide variety of hazards. The nature of the hazard and the operation involved will affect the selection of gloves. It is essential that employees use gloves specifically designed for the hazards and tasks found in their workplace because gloves designed for one function may not protect against a different function even though they may appear to be an appropriate protective device. The following are examples of some factors that may influence the selection of protective gloves for a workplace.

- Type of chemicals handled.
- Nature of contact (total immersion, splash, etc.).
- Duration of contact.
- Area requiring protection (hand only, forearm, arm).
- Grip requirements (dry, wet, oily).
- Size and comfort.
- Abrasion/resistance requirements.

5.14.6 Whole body clothing
The clothing should be carefully inspected before each use, it must fit each worker properly and it must function properly and for the purpose for which it is intended.

5.15 Free-Standing Tower Scaffolds
A free-standing tower scaffold consists of four or more posts connected together longitudinally with runners and bearers at right angles to the runners, forming a square or rectangular tower. Alternatively, a free-standing tower scaffold may be constructed of a fabricated tubular frame or system scaffolding. A free-standing tower scaffold has a single working platform and is a common form of access scaffolding for painters and others who do work of a light nature and of short duration.
5.15.1 Design, Loading and Dimensions

A free-standing tower scaffold shall have only one working platform and the maximum distributed load shall not exceed the load rating which is determined by the platform unit type and the scaffold duty.

The height from the base to working platform of a free-standing tower scaffold shall not exceed four times the minimum base dimension. In no case shall the minimum base dimension be less than 1.2 meters (4 feet).

5.15.2 Runners and Bearers

The vertical spacing of runners and bearers shall be 2.0 meters (6 feet, 6 inches). The lowest runners and bearers shall be as near to the base as possible. Runners and bearers shall be secured to the posts with standard couplers.

5.15.3 Bracing

Sway bracing is necessary on all four elevations to the full height of the scaffold. Plan bracing is also required at the base, at the top, and at every third lift to prevent racking.

5.15.4 Ties

Free-standing tower scaffolds more than 9.8 meters (32 feet) in height shall be adequately tied to a building or structure. Where tying to a building or structure is impracticable, one of the following methods of ensuring stability shall be used:

1. Guy wires at a slope of approximately 45° connected to the working platform level of the tower.
2. Bottom corners of the tower securely anchored.
3. Outriggers extending to the ground.

The strength of the guy wires or of the anchorage used shall be calculated, having due regard to the horizontal wind forces and other known forces which may be applied to the tower. These calculations shall be reviewed by HSE Department.

5.15.5 Platform

The single working platform of a free-standing tower scaffold shall not project beyond the base area and the platform unit(s) shall be securely fixed in position.

5.15.6 Access

Where the means of access to the working platform is outside the tower structure, due consideration must be given to the effect of such means of access on the stability of the scaffold. Where a sloping ladder would cause instability, a securely fixed vertical ladder may be used.
5.15.7 Limitations

Free-standing tower scaffolds erected and used in accordance with these directions and with one working platform may be used up to a maximum height of 12 meters (40 feet) to the work platform. Free-standing tower scaffolds departing from these directions shall be specially designed.

5.16 Mobile Tower Scaffolds

The requirements for free-standing tower scaffolds in 5.15 also apply to mobile tower scaffolds with the exception that wheels are used in place of base plates and sills.

5.16.1 Foundations

Wheels or casters, not less than 12.7 centimeters (5 inches) in diameter, and fitted with brakes, which cannot be released accidentally, shall be securely fixed to the bases of the posts by lock pins or dowels.

A mobile tower scaffold shall only be used and moved on surfaces sufficiently firm and level to ensure stability. Where the scaffold is to be used on a suspended floor, it shall be designed to apply loads no greater than the bearing capacity of the floor.

Temporary foundations or track laid on soft or uneven ground to facilitate the erection and movement of the tower shall be constructed and anchored so that its bearing capacity is not exceeded due to imposed loading from the tower. The track shall be level and properly secured.

5.16.2 Operation

A mobile tower scaffold shall be moved only by pushing or pulling at the base. Force must not be applied at a height greater than 1.4 meters (4 feet, 6 inches) above the base. No men, equipment or materials shall be on the working platform or elsewhere on the structure while it is in motion. Wheel brakes shall be applied at all times when men are on the stationary mobile tower scaffold.

5.16.3 Limitations

Mobile tower scaffolds, erected and used in accordance with these directions, supported on four wheels and with one working platform, may be used up to a maximum height of 12 meters (40 feet). Mobile tower scaffolds departing from these directions shall be specially designed and properly secured.

5.17 Scaffolding Inspection

- Inspection must be carried out by the HSE supervisors and scaffolding supervisor and the results should be recorded on a prescribed register.
- Inspection must take place:
  - Prior to handing over the scaffold.
  - At least every seven days thereafter.
Following severe weather conditions

Contractors and site management staff should adopt appropriate measures in times of inclement weather to ensure the occupational safety and health of workers. Supervisors should ensure that the working environment is safe. They should also provide personal protective equipment such as safety helmets, waterproof safety boots and raincoats for workers on site.

When the weather turns bad, engineering staff on site should ensure that all scaffolding and hoardings are secured and taut, and all canvas removed. Workers responsible for lifting or transport appliances should not operate cranes such as tower cranes in strong wind, but should secure the jibs in a safe position according to the instructions of their supervisors. Those responsible for external wall maintenance and cleaning should stop their work, lower suspended working platforms to the ground and secure them, when there is torrential rain and thunderstorms, it is unsafe to work outdoors or in an open area. Supervisors should ask their operators to suspend their work and take temporary shelter in a safe place. Work should only be resumed when the weather conditions permit.

When the weather is back to normal, it is of paramount importance for contractors to check site conditions thoroughly and carry out necessary repairs or rectifications to ensure site safety before work resumes.

Hazards commonly found on site after inclement weather include:

- flooding in excavations;
- damaged scaffolding or working platforms on scaffolding;
- caving in of the sides of excavations and damage to the shoring;
- loosening of anchor aging arrangement of lifting appliances;
- leakage of electric current from electrical installations; and
- missing safety fencing.
- Damage caused by an external force (e.g. collision of vehicle etc.) which may have affected the integrity of the scaffold. After modifications.

5.18 Work at Height - Safety Policy

- all work at height is properly planned and organised;
- all work at height takes account of weather conditions that could endanger health and safety;
- those involved in work at height are trained and competent;
- the place where work at height is done is safe;
- equipment for work at height is appropriately inspected;
- the risks from fragile surfaces are properly controlled; and
- the risks from falling objects are properly controlled.

5.18.1 Persons at Risk

- Maintenance Staff, Technicians, CET.
- Staff/students.
- Others working at height or within the immediate vicinity of such work.
5.18.2 Work at Height - Definition
The Work at Height Regulations define a place of work as being “at height” as “work in any place - from which, if no action was taken a person could fall a distance, liable to cause personal injury”, this could be above or below ground level. Within the Regulations, there is no minimum height below which the regulations do not apply.

5.18.3 Requirements for safe Work at Height
The overriding principle for Work at Height is to prevent, so far as is reasonably practicable, any person falling a distance liable to cause personal injury. The Regulations lay down a prescribed hierarchy for safe work at height as follows:

a. **Avoid** the risk by not working at height.
Where it is reasonably practicable to carry out the work safely other than at a height, then this must be done.

b. **Prevent** falls - where it is not reasonably practicable to avoid work at height, you should assess the risks and take measures to allow the work to be done whilst preventing so far as is reasonably practicable people or objects falling. This might include ensuring the work is carried out safely from an existing place of work or choosing the right work equipment to prevent falls.

c. **Mitigate** the consequences of a fall – where the risk of people or objects falling still remains you should take steps to minimize the distance and consequences of such falls. This also involves the selection and use of work equipment and preventing those not involved with the work from entering the hazardous area.

d. **Collective Protective Measures.** At all stages give collective protective measures (e.g. guard rails, nets, airbags, etc.), precedence over personal (e.g. safety harnesses) protective measures.

Before any Work at Height commences each Department must appoint a suitably competent person to:
- assess the risk to determine a safe way to work
- follow the above hierarchy
- plan and organise the work taking account of emergency measures, possible weather and environmental conditions
- make sure those Working at Height are competent to do so, understand the risks and the Risk Assessments
- select and use appropriate work equipment for the tasks
- manage risks from working near or on fragile surfaces
- carry out inspections on equipment to be used and the work area itself.
5.18.4 Access Equipment & Risk Assessment
Access equipment will be conventional “leaning” ladders, stepladders and scaffold towers.
A risk assessment of the work activity will determine the type of equipment most suitable for the task. Recommendations arising from the risk assessment, together with the safety instructions/advice given in the attached guidance notes must be observed by all members of staff and students using access equipment. Work necessitating the use of hired-in scaffold towers, cherry-pickers or other forms of mobile elevated working platforms must be sanctioned by either the CET Safety Representative, Health & Safety Coordinator or other competent person.

5.18.5 Training and Competence
A key element of the Work at Height Regulations is training to ensure the competence of all when it comes to work at height. This includes not only those carrying out the work but also those who are involved in the organization, planning, supervision, supply and maintenance of equipment. The Health and Safety Coordinator is responsible for advising Heads of Departments that all staff who work at height and/or uses access equipment must receive appropriate training and is shown a copy of the attached guidance notes (a record should be kept that the employee has read and understands the safety instructions).

Heads of Departments must ensure that any of their staff who are required to work at height are properly trained to do so. Anyone who needs access to an area of height, irrespective of whether they are directly or indirectly employed, must have adequate training and supervision. This includes contractors, sub contractors and any maintenance worker who might need access to buildings or equipment at height.
Managers and supervisors must also be trained so that they are able to identify risks when carrying out risk assessments, prepare a clear safety method statement for those carrying out the work and ensure that the work is adequately supervised and ultimately carried out safely.

5.18.6 Ladder Registers
The Maintenance Department maintain a central ladder register of all ladders. The Maintenance Team are responsible for carrying out and recording three monthly ladder inspections, with the exception of the CET department’s ladders.

5.18.7 CET
Ladders and stepladders used by the CET Department are all numbered and entered onto their Ladder Register.
Their procedures include a visual inspection of ladders before use to identify any faults and information, instruction training and supervision when being used by staff.
This training is recorded and makes up part of the staff’s portfolio.
5.18.8 Equipment Register/Safety Inspections

Each Department will ensure their ladders are numbered for identification purposes and recorded in a Ladder Register.
Each Department will ensure 3-monthly safety inspections of all ladders and access equipment is conducted by a suitably competent person, which will be recorded in the register. Ladders and stepladders must be inspected before each use to identify and faults which may cause injury. Guidance notes for the safe use of:
- Leaning Ladders
- Stepladders
- Scaffold Towers

Anyone who uses access equipment must be properly trained.
All tasks involving work at height should be carefully risk assessed to consider what tools and materials are needed, how long the task will take and the suitability of the access equipment.

5.18.9 Ladders

A risk assessment of the work activity will determine the type of equipment most suitable for the task. As a guide (in accordance with generally accepted best practice), leaning ladders or stepladders should only be used:
- for “light work”, not strenuous or heavy work.
- If a task involves carrying more than 10 kg up a ladder, it will need a separate manual handling risk assessment
- for access/egress or where the ladder will be in one position for a limited period of time
- where you can maintain three points of contact (with both feet and hand) at the working position
- if the task can be performed without overloading the ladder (safe working load)
- if the task can be performed without overreaching - the belt buckle/navel should be inside the stiles and both feet kept on the same rung
- for work which does not involve side loading (such as drilling through solid materials for which exertion of pressure is necessary)
- externally, when weather conditions cannot endanger health and safety
- if there are no visible defects - a visual pre-use safety check should be conducted.

5.18.10 Work at Height - Access Equipment

5.18.10.1 Leaning Ladders

The Work at Height Regulations 2005 do not ban ladders. They require that ladders should only be considered where a Risk Assessment has shown that the use of other more suitable work equipment is not appropriate because of the low risk. Carefully consider the use of other methods before deciding whether ladders are appropriate for
the task.

In the HSE Guidance, ladders are at the bottom of the hierarchy for work at height. Avoidance, fall prevention and mitigation come first. Ladders don't prevent a fall and they don't mitigate the effects of a fall but if used by trained persons and they are maintained, inspected and tied and are used with ladder stability devices where necessary, then their use may be acceptable. Ladders can sometimes be justified for short duration/light work, low risk or simple access.

Heavy, longer duration lends itself more to simple towers or Mobile Elevated Working Platforms (MEWPS).

The following may assist in carrying out a risk assessment and deciding upon the most suitable forms of access/working platform:

1- Ideally, both hands should be free for the climb/descent. Tools/materials should be carried using a shoulder bag, tool belt or holster attached to a belt.

2- A secure handhold and secure support are available at all times.

3- The work can be reached without stretching.

4- The ladder can be secured to prevent slipping.

5- For working heights above 3 meters, the ladder should be tied at the top and secured at ground level or footed by a second person.

6- Ladders should extend at least 1 meter beyond any step-off point unless there is a separate handhold.

7- Ladders should be positioned at a resting angle of approx. 75 degrees (ratio of 1 unit horizontally at the foot to four units vertically).

8- Ladders must not be rested on weak or unstable upper surfaces (e.g. glazing or plastic gutters) and the foot of the stiles must be on a flat, level and stable surface.

9- Only one person should be on the ladder at any one time.

10- Do not use the top 3 rungs.

11- Ensure ladders are used the correct way up.

Timber ladders often have stiles thicker at the bottom than the top, and metal tie rods should be beneath rungs. Metal rungs with flat and curved surfaces should be used flat side up.

12- The area at ground floor level should be cordoned-off as necessary for the protection of persons who might be struck by falling objects and to reduce the risk of the ladder being knocked or bumped.

13- Wooden ladders are not recommended but if used, should not be painted.

14- Reposition the ladder as necessary - do not overreach - your belt buckle/navel should remain within the stiles.

5.18.10.2 Stepladders

1- The 2 main hinged sections should be fully extended for use.

2- Struts, chains, ropes or other fittings are required to prevent over-extension and
collapse of the hinged sections. Fixed struts and/or the top platform should be locked in position if fitted.

3- The four feet must be on a flat, level and stable surface.

4- Ideally, both hands should be free for the climb/descent. Tools/Materials should be carried using a shoulder bag, tool belt or holster attached to a belt.

5- Avoid using ladders near doorways, or if this is not practical, cordon off work area.

6- Always position the ladder so that you are facing the work activity—never have the ladder side-on.

7- One person at a time only to use the stepladder.

8- Wooden stepladders should not be painted.

9- Do not use the top two steps (except for the small 2/3 tread stepladders or when a suitable handrail is fitted).

10- Do not climb up stepladders whilst they are leaning against fixtures.

11- Reposition the stepladder as necessary - do not overreach - your belt-buckle/navel should remain within the stiles.

5.18.10.3 Scaffold Towers

1- Assembly and any alterations should be conducted only by trained and competent persons, strictly in accordance with the manufacturer's/supplier's recommendations.

2- Use only on a firm level base – wheeled castors must be locked at all times whilst the tower is in use.

3- The height of the working platform should not exceed 3.5 times that of the minimum base dimension (inclusive of outriggers) for internal use, or 3 times for external use.

4- Only outriggers supplied by the manufacturers of the tower may be used.

5- Under no circumstances should the tower be moved whilst anyone is on the platform.

6- The platform may not be used for other access equipment to gain extra height.

7- The Regulations require that handrails have a minimum height of 950 mm (increased from 910 mm in the old Regulations). Where existing 910 mm handrails are fixed in place they can remain at that height until they are changed. Any gap between the top rail and any intermediate rail should not exceed 470 mm.

8- The work platform should be fitted with toe-boards to prevent the fall of materials/tools.

9- Not to be used externally in windy conditions.

10- Ladder access to be provided on the narrowest side.

11- The area at ground floor level should be cordoned-off as necessary for the protection of persons below who might be struck by falling objects

12- All scaffold tower equipment should be inspected frequently by a competent person and certified as safe and fit for use.

13- The safe working load (SWL), as determined by the manufacturer, must not be
exceeded.

5.19 Scaffolds for Tanks and Vessels

Tube and coupler scaffolds for tanks and vessels shall be erected in accordance with previous paragraphs. Secure tying to the structure is essential for stability.

5.19.1 Bracket Scaffolds

Brackets and bracket straps shall be constructed, fixed and erected in accordance with the manufacturer's instructions. It is essential that the brackets, straps and welds are of sufficient strength to support the weight of the scaffold, men, tools and materials.

The bracket straps shall be welded to the wall of the tank by a certified welder. The weld shall be a full 5 millimeters (3/16 inch) fillet. Prior to welding on any tank, approval is required from POGC.

The weld shall be made with the same type of electrode as used for the main tank weld joints. Before the bracket is attached to the strap, the weld shall be inspected by a competent welding inspector or welding supervisor who will approve and accept the weld. Brackets shall be inspected prior to each use and damaged or defective brackets shall be removed from service. Brackets shall be vertical and horizontal spacing shall not exceed 2.5 meters (8 feet) on centers.

A rigid guardrail system and toe boards shall be securely fixed to the uprights of the brackets (see Section 9.4.9). Alternatively, 3/8 inch diameter wire ropes may be used in place of top rails and mid rails providing that they are securely fixed and kept taut by the use of turn buckles.

Whenever men are working, the platform shall be fully decked.

Excessive storage or accumulation of materials or platform units (planks) shall not be permitted.

The scaffold shall be designed to support a minimum load of 1.2 kPa (25 lb./sq. ft). No more than two persons shall occupy any given 2.5 meters (8 feet) of bracket scaffold at any one time. Tools and materials shall not exceed 34 kg (75 lb.) in addition to person(s) occupying the area.

5.20 Safety buggy

While use of buggy shall regard these safety points:

The safety buggy shall be equipped with a suitable hand brake and shall be kept at the principal working platform and be readily accessible at all times.

A visual inspection of the safety buggy shall be performed prior to each work by the competent person.

The safety buggy shall be installed according to manufacturer's specifications and anchored to structure securely and firmly.

The safety buggy shall only be used in the event of any emergency.

The buggy must be kept at the principal working platform when not in use so that it is ready when needed.

All components of buggy such as points of welding, rails, guards... shall be in a safe
condition and maintained properly. Worker who use of buggy must be trained and familiar to proper work practice on the buggy. Safety buggy should be checked by component worker.

6. DEFINITIONS & ABBREVIATION

**Access Platform:** A fully boarded out bay which provides step off points for ladder access.

**Anchorage:** The safe use of a suspended scaffold begins with secure anchorage. The weight of the scaffold and its occupants must be supported by both the structure to which it is attached and by each of the scaffold components that make up the anchorage system.

**Base Plate:** A metal base (with a central spigot) for distributing the load from a standard, raker or load bearing tube.

**Bay Length:** The distance between two adjacent standards along the face of a scaffold.

**Board:** A softwood board used with similar boards to provide access platforms, working platforms or toe-boards, etc. (Where softwood boards are used these must be treated and approved as “Flame Retardant”)

**Board Bearer (Intermediate 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 a scaffold and secured to them in order to ensure stability.

**Buttress:** A well braced tubular structure erected against existing scaffolding for the purpose of strengthening it.

**Castor:** A swiveling wheel with a lock device secured to the base of a standard for the purpose of making a scaffold mobile.

**CET:** Certified Elevator Technician

**Competent person:** One who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them. The competent person will be designated field work supervisors, safety professionals, or hoisting and rigging personnel who have completed scaffold inspectors training. Construction forces will designate a competent person for scaffolding. The competent person will have scaffold inspectors training or an equivalent training course approved by the Training center. Construction forces will maintain a list of designated competent persons for scaffolding.

**Coupler:** A fitting used to fix scaffold tubes together. Couplers are divided into load bearing or non-load bearing.

**Full body harness:** full body harness means a harness consisting of leg and shoulder straps and an upper back suspension unit that will distribute and reduce the impact force of any fall;

**Gridlock:** Scaffolding Gridlock Coupler designed for joining beam and tube

**Guard-rail:** A tube secured onto the scaffold to prevent the fall of a person.

**Hoop Iron:** Metal bond fitted to the ends of a softwood board to prevent splitting.

**Hot Surface:** Hot Surface Igniter products from Fenwal are carefully designed to safely control and deliver natural gas and LP in all types of gas-fired devices

**Ladder:** "ladder jack scaffold" means a scaffold erected by means of attaching one or more brackets to one or more ladders to support a work platform;
**Lanyard**: "Lanyard" means a flexible line used to secure a person to a lifeline, a static line or a fixed anchor point;

**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.

**Life Line**: Life Line System is an ideal solution to personal fall protection for workers erecting masonry frame scaffolds. The Safe-T-Strap HLL System is installed on the scaffold frames as the scaffold is being erected to provide a continuous attachment point which will allow complete freedom of movement while erecting or dismantling the scaffold.

**Lift**: The assembly of ledgers, transoms and board bearers forming each horizontal level of a scaffold.

**Load rating categorization**: According to OSHA and ANSI criteria and many years of experience with these systems, design load ratings for scaffold platforms are as follows:

**Light-Duty Loading, 25 lb/ft**: maximum working load for support of people and tools (no equipment or material storage on the platform). Medium-Duty Loading, 50 lb/ft maximum working load for people and material often described as applying to bricklayers’ and plasterers’ work. Heavy-Duty Loading, 75 lb/ft maximum working load for people and stored material often described as applying to stone masonry work.

**Mid rail**: An intermediate railing on the inner side of the posts midway between the top railing and the toe board.

**Needle Transom**: A transom extended from a scaffold.

**Node Point**: Common point where ledgers, standards and transoms are fixed.

**Personnel Fall arrest systems**:
A fall arrest system shall
(a) be adequately secured to
(i) an anchor point, or
(ii) a lifeline that is
(A) securely fastened to an anchor point, or
(B) attached to a static line that is securely fastened to an anchor point that is capable of withstanding either the maximum load likely to be imposed on the anchor point or a load of 17.8 kN, whichever is greater;
(b) include a lanyard that
(i) is attached to an anchor point or lifeline, where practicable, above the shoulder of the user, and
(ii) complies with CSA Standard Z259.1-1995, "Fall Arresting Safety Belts and Lanyards for the Construction and Mining Industries";
(c) prevent a free fall greater than 1.22 m where
(i) the fall arrest system is not equipped with a shock absorption system that complies with CSA Standard Z259.11-M92, "Safety Belts and Lanyards", and that reduces the shock level of any fall to less than 4 kN; or
(ii) the combined free fall and shock absorbed deceleration distance exceeds the distance between the work area and a safe surface; and
(d) include a full body harness that
(i) is attached to a lanyard,
(ii) is adjusted to fit the user of the harness, and
(iii) complies with CSA Standard Z259.10-M90, "Full Body Harnesses".
**Puncheon:** A vertical tube secured at its lower end, with a load bearing coupler, to a horizontal tube. The load is not transmitted directly into the ground or into a base plate.

**Putlog:** The flat end of the putlog rests in the brickwork. The putlog then rests on the ledgers the widths are usually 1.3m to 1.650m wide

**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 ability to solve or resolve problems related to the subject matter, the work, or the project. As this relates to design, the qualified person is one who has the ability to determine the type of scaffold needed for a particular job, to include safe loading of the scaffold system in accordance with the design requirements of international regulations

**Raker:** An inclined load bearing tube.

**safe working load (SWL):** The term “safe working load” (SWL), as used in reference to wire rope, means the load that can be applied and still obtain the most efficient service and also prolong the life of the rope

**Safety Belt:** A belt worn by a person as a means of fall protection

**safety harness:** A safety harness is a form of protective equipment designed to protect a person, or object from injury or damage. The harness is an attachment between a stationary and non-stationary object and is usually fabricated from rope, cable or Webbing and locking hardware.

**Safety net:** A net that is used to catch a person during a fall;

**Scaffolding:** "Scaffolding means any structure or framework used or intended to be used to support workmen engaged in and equipment and material used in erecting, demolishing, altering, repairing, cleaning, painting or carrying out any other kind of work in connection with any building, structure and includes any swing stage, ladder, access way, guard rail, toe board and any other safeguard or any part thereof used or intended to be used for or in connection with scaffolding”.

**Scafftag:** A tag strategically displayed, normally at all access point to every scaffold which indicates that the scaffold has been inspected within the previous seven (7) days and is safe to use.

**Shock Absorber Lanyard:** Shock Absorber Lanyard contains a shock-absorbing inner core that elongates when subjected to a fall, thereby reducing the force. After a fall occurs, Shock-Absorbing Lanyards release a warning flag to indicate that a replacement is needed. They should meet all applicable OSHA and ANSI requirements.

**Sleeve:** A fitting which fits over a scaffold tube and is used to join one tube to another, end to end.

**Sole Plate:** A timber (normally a short scaffold board) used to spread the load from the base plate over an extended area.

**Spigot (Joint Pin):** A fitting which fits inside a scaffold tube and is used to join one tube to another, end to end.

**Standard:** A vertical tube used to transmit the load to ground or ground level.

**Stop End:** A guard-rail placed across the end of a scaffold, or used to isolate un-boarded parts.

**Tie:** A tube used to tie a scaffold into a secure anchorage.

**Toe-board:** A board positioned along the edge of a platform to prevent persons, tools and materials falling from the platform.
Toe-board (putlog) Clip: Used to fix a toe-board to a scaffold tube.

Top rail: a top rail is a device that is above the surface of the protected working area and that is securely fastened to posts secured

Transom: A tube connecting the outer standards to the inner standards. It spans across ledgers and forms the working platform.

Transverse: Transverse bracing: Bracing at right angles to the long side of the scaffold, so the X is in the interior scaffold space, between parallel uprights.

Unit Beam: A purpose made lattice beam incorporated into a scaffold structure to form a bridge where an extended opening between standards is necessary.

Working at height: A place is ‘at height’ if a person could be injured falling from it, even if it is at or below ground level.

Working Platform: The boarded out deck from which work is carried out.

7. REFERENCES

- BS 5973 Section 2 (9) 1993
- ANSI A10.8 - 1988 Scaffolding-Safety Requirements
- Scaffolding Act 1971, No. 8146
- Scaffolding (Certification of Scaffolding Inspectors) 1974, No. 339

8. ATTACHMENTS

Attachments 8 to 11 shall be completed by Contractor HSE Supervisor and archived in HSE departments.
ATTACHMENT 2: A TYPICAL TUBE AND COUPLER SCAFFOLD
ATTACHMENT 3: A TYPICAL TUBE AND COUPLER MOBILE ACCESS TOWER
ATTACHMENT 4: SCAFFTAGS

Scafftag (GREEN side)

SCAFFTAG®

ERECTION AND INSPECTION RECORD

LOCATION............................

IDREF
.................................

DATE ERECTED....................
REQUESTED BY......................
BUILT BY.............................

FOREMAN............................
SIGNATURE..........................

STRUCTURE TO BE USED

FOR

Very Light Duty
0.75 KN/m

General Purpose
Scafftag (RED)

DO NOT USE
THIS SCAFFOLD
KEEP OFF

This scaffold is being erected, altered or dismantled.

Only employees authorized by the competent person-erection may access this scaffold

P.O.C. & PHONE #

DATE

COMPETENT PERSON-ERECTION
Reorder No. G303401.2
Scafftag (YELLOW side)

![Scafftag Image]

**WARNING**
UNLAWFUL REMOVAL OR INTERFERENCE WITH THIS SIGN COULD MAKE YOU LIABLE TO PROSECUTION AND FINES

<table>
<thead>
<tr>
<th>AUTHORISED PERSON:</th>
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M*BOARDING: ........................................................................

STRUCTURE DECOMMISSIONED DATE:
REF. NO. S.T.S.I.
## ATTACHMENT 5: MOBILE SCAFFOLD INSPECTIONS CHECK LIST

<table>
<thead>
<tr>
<th>CHECK</th>
<th>CHECK</th>
<th>REMARKS</th>
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<tbody>
<tr>
<td>Correct wheels</td>
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<td></td>
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<tr>
<td>Wheels secured to uprights</td>
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<td></td>
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<tr>
<td>Proper wheel brake</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foot ties (Foot pipe) installed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foot pipe close to wheels</td>
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<td></td>
</tr>
<tr>
<td>Horizontal members fixed to uprights with load</td>
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<td></td>
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<tr>
<td>Kentledge (Ballast) properly positioned &amp; secured</td>
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<tr>
<td>Upright Spacing correct</td>
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<tr>
<td>Proper Ground</td>
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<thead>
<tr>
<th></th>
<th>YES</th>
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<td>Inspected by</td>
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</table>

If any modifications or abnormality occurs the scaffold should be re-inspected again prior to use.
### CHECKLIST FOR TRUSS-OUT A190 SCAFFOLD

<table>
<thead>
<tr>
<th>CHECK ITEMS</th>
<th>CHECK</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access existing</td>
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<td></td>
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<tr>
<td>Supporting structure secured</td>
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<tr>
<td>Back struts spacing correct</td>
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<tr>
<td>Back struts stabled</td>
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<tr>
<td>Ties secured</td>
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<tr>
<td>Tube connection with right angle</td>
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<td></td>
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<tr>
<td>Rakers angle correct</td>
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<tr>
<td>Check couplers positioned correct</td>
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<tr>
<td>Tubes good condition</td>
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<tr>
<td>Fittings good condition</td>
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<tr>
<td>Rakers &amp; standards distance correct (not more than)</td>
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<tr>
<td>Rakers &amp; standards fitted check couplers</td>
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<td></td>
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<tr>
<td>One loading platform</td>
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<tr>
<td>Standards in one line</td>
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<tr>
<td>Standards vertical</td>
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<tr>
<td>Ledgers distance correct</td>
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<tr>
<td>Ledgers in parallel plane</td>
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<td></td>
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<tr>
<td>Spacing of transoms</td>
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<tr>
<td>Even support and line of board</td>
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<td></td>
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<tr>
<td>Security of guardrails, boards and toe-boards</td>
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<tr>
<td>Diagonal facade bracing</td>
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<tr>
<td>Security and correct use of couplers</td>
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<tr>
<td>Standard &amp; rakers distance correct (max.300mm)</td>
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<tr>
<td>Board overhang</td>
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<tr>
<td>Guardrail and midrail secured</td>
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<td>Inspected by: (Signature)</td>
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If any modifications or abnormality occurs the scaffold should be re-inspected again prior to use.
Safety checklist for Truss-out Scaffold (Sheet 2)

**CHECKLIST FOR TRUSS-OUT SCAFFOLD**

<table>
<thead>
<tr>
<th>CHECK ITEMS</th>
<th>CHECK</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toe boards secured</td>
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<tr>
<td>Platform boards secured</td>
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<td></td>
</tr>
<tr>
<td>Ledgers in parallel plane</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spacing of transoms evenly and correct</td>
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<tr>
<td>Ledger bracing</td>
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<tr>
<td>Facade bracing</td>
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<tr>
<td>Overloading</td>
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</tr>
<tr>
<td>Stacked material secured</td>
<td></td>
<td></td>
</tr>
<tr>
<td>standard in one line</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standard are vertical</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tubes in good condition</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
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<td></td>
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<td></td>
</tr>
</tbody>
</table>

Inspected by (Signature)

If any modifications or abnormality occurs the scaffold should be re-inspected again prior to use.
## ATTACHEMENT 7: Safety checklist for Cantilever Scaffold

### CHECKLIST FOR CANTILEVER SCAFFOLD

<table>
<thead>
<tr>
<th>CHECK ITEMS</th>
<th>CHECK</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access existing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Excavation near by</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Man-holes covered</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elec. Line near by</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supporting structure secured</td>
<td></td>
<td></td>
</tr>
<tr>
<td>All spacing correct (according to design)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fork heads and foot ties secured</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foot ties secured</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tube good condition</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fitting good condition</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ties correct (no reveal ties)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ties secured</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overload</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Platform QT'Y correct (as designed)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standards in one line</td>
<td></td>
<td></td>
</tr>
<tr>
<td>standards are vertical</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ledgers distance correct</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ledgers in correct parallel plane</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spacing of transoms correct</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Guardrails, boards and toe-boards secured</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diagonal facade bracing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standards &amp; rakers distance correct (max.300mm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Board overhang</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ledger bracing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stacked material secured</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

If any modifications or abnormality occurs the scaffold should be re-inspected again prior to use.

**Name of S/C:** [Name]

**Scaffold ID**

**Name of CONTRACTOR Surveyor:** [Name]

**Purpose:** [Purpose]

**Structure to be used for:** [Structure]

**Inspected by:** [Signature]
ATTACHEMENT 8: Safety checklist for Slung Scaffold

SLUNG SCAFFOLD INSPECTIONS CHECK LIST

<table>
<thead>
<tr>
<th>CHECK ITEMS</th>
<th>CHECK</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supporting to girders</td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td>Anchorage secured</td>
<td>NO</td>
<td></td>
</tr>
<tr>
<td>Proper girder coupler used</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Lifting gear tested (certificates in order)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Suspension gear correct (according to design)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Suspension gear space correct</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Suspension gear secured</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scaffold frame, ledgers correct space</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scaffold frame, ledgers properly secured</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scaffold frame, transoms correctly spaced</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scaffold frame, transoms properly secured</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Toe-boards secured</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scaffold boards closed, secured</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Undue movement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hand rail + mid rail correct</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overloading</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pipe members extra projection</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Materials stacked security</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Node for pull-out members</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Inspected by (Signature)

If any modifications or abnormality occurs the scaffold should be re-inspected again prior to use.
## ATTACHMENT 9: Safety checklist for Ladders

### INSPECTIONS OF LADDERS

<table>
<thead>
<tr>
<th>CHECK ITEMS</th>
<th>CHECK</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>Length enough</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wrapness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Range loose</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rungs missing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lashes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rungs weariness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Splitting (timber steps)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Levelness (timber steps)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rungs pitch correct (timber steps)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rungs secured (timber steps)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Inspected by (Signature)

If any modifications or abnormality occurs the scaffold should be re-inspected again prior to use.
## ATTACHMENT 10: Scaffolding Static Inspection Checklist

<table>
<thead>
<tr>
<th>SCAFFOLDING STATIC INSPECTION CHECKLIST</th>
<th>CHECK</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of S/C:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scaffold ID No.:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Name of IOIC Surveyor:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Date:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Purpose:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Structure to be used for:</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>CHECK ITEMS</strong></td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td><strong>A) Scaffold Boards</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Clean and clear of debris</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Correctly jointed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Correctly lashed</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>B) Scaffold Tubes</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Not bent or distorted</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Free from corrosion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Correctly fitted</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Sufficient bracing</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>C) Scaffold Fittings</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Clean and lubricated</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Free from corrosion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Correctly tied</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>D) Access</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Ladders for access</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Free access to scaffolds</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>E) Ladders</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Long enough</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Clean and no loose or missing</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>F) Foundations &amp; Structure</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Firm footing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Correctly attached to firm structure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Designed to take actual load</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>G) prevent Risks of Falling</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Two fixed handrails</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Toe-boards fixed and secured</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>H) Safety Equipment</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Safety harness with life line</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Working life vest</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Scafftag</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Inspected By:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Signature:</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

If any modifications or abnormality occurs the scaffold should be re-inspected again prior to use.
ATTACHMENT 11: GENERAL CHECK LIST:
Below are some items that should be checked when considering Scaffolding and Ladders:

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Are there any defective scaffold materials on site i.e. boards, tubes, couplings etc.?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Is the scaffold generally in line with Figures 1 - 4.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Are proper scaffold entry tags (Scafftags) used to inform personnel when it is safe (or not safe) to use a scaffold?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Are properly constructed scaffolds used for all work above two metres?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>If wooden scaffolds are used are they no higher 2.5m and used for light duty only?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Are the scaffold boards the required thickness and supported as required?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Is there any significant point loading?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Is the scaffold width adequate (600mm for access; 1000m for work)?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Are scaffold boards and toe-boards properly secured?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Is there proper access for ladders? Are ladders secured at least at the top?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Is the ladder slant angle approx. 4:1?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Is the ladder leaning on any pipe of less than 4&quot; diameter? If so it must be removed.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Is the base-to-height ratio for scaffolds towers acceptable (3:1 for mobile; 4:1 for fixed)?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Are scaffolds constructed by competent personnel?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Are light alloy or aluminium ladders being used with care on site?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Are guard rails in place?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Are safety harnesses used when required?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Are scaffold inspections performed after each modification or bad weather and at least weekly? Are proper records of these inspections kept?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
SUGGESTIONS FOR THE *POGC*
SCAFFOLDING & WORKING AT HEIGHT PROCEDURE

MANAGER, HSE Department
Pars Oil & Gas Company
Tehran I.R. Iran

Please consider the following suggestion(s) relative to the *POGC* Scaffolding & working at height safety procedure:

______________________________________________________________________________________________
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______________________________________________________________________________________________
______________________________________________________________________________________________

(Signature)
(Date)
(Address)

Contact Telephone Number

Contact FAX Number