HANFORD MISSION SUPPORT CONTRACT

Scaffolds

MSC-PRAC-30482

Revision 0

Effective Date: December 9, 2009

Topic: Safety and Health

Scaffolds

PURPOSE

This practice identifies a key aspect of the Safety and Health (S&H) program, and establishes the requirements and practices for design, erection, inspection, and use of scaffolds including training requirements.

SCOPE

This practice includes the following major sections:

- General Requirements
- Scaffold Inspection
- Scaffold Erection
- Scaffold Use
- Training

The requirements of this practice are consistent with the requirements published in the Hanford Mission Support Contract (MSC) Safety and Health virtual manual.

APPLICATION

This practice applies to Mission Support Alliance (MSA) construction personnel.

GENERAL REQUIREMENTS

Records generated during the performance of this activity are to be included in the Construction Work Package and will be managed in accordance with MSC-PRAC-30374, *Construction Work Package* and MSC-PRAC-30376, *Construction Document Control.*

Design

Qualified Persons plan, design, or modify scaffold systems. Special job needs (configuration, location of access, material handling) are communicated to the Qualified Person preparing design specifications for a scaffold system.

A registered professional engineer, designated as a Qualified Person, designs tube and coupler and tubular welded frame scaffolds over 38.1 meters (125 feet) in height, pole scaffolds over 18.3 meters (60 feet) in height, and all outrigger beam scaffolds and their components.

Competent Person

Competent Persons are designated to:

- Inspect Scaffolds
- Direct scaffold selection and erection/dismantling, including a determination of a safe means of access
- Train scaffold erectors, inspectors, and maintenance/repair persons
- Resolve issues

NOTE: *Refer to practice* MSC-PRAC-30452*, Program General Requirements,* for Competent Person designation.

Inclement Weather

The area construction manager determines if it is safe to work on or from scaffolds during storms or high winds. If authorization is given to perform such work, use additional safety precautions including a personal fall arrest system (PFAS) or previously installed windscreens.

SCAFFOLD INSPECTION

The Competent Person inspects scaffolds (and their components) to be used before the start of each work shift, and after any event that could affect the scaffold's structural integrity. Refer to form *Scaffold Checklist – Inspection,* A-6004-298 for scaffold inspection criteria. Results of inspections are documented on form (tag) *Scaffold Inspection Tag*, A-6004-306 , (or equal); the tag remains affixed to the scaffold.

SCAFFOLD ERECTION

Erectors conduct the following activities.

Construct, modify, and alter scaffolds only with knowledge of the maximum intended load and in accordance with the design criteria and the manufacturer's recommendations. Refer to form *Scaffold Checklist – Erection,* A-6004-302 for scaffold erection criteria (not mandatory).

Construct scaffolds so that the structure and its components are capable of supporting, without failure, their own weight and at least 4 times the maximum intended load.

EXAMPLE: *4 employees @ 300 lbs each = 1,200 lbs + 100 lbs of tools = 1,300 lbs x 4 = 5,200 lbs maximum intended load.*

Inspect scaffold components and materials before use, ensuring that wood scaffold planks (when used) are scaffold grade lumber or the equivalent, as recognized by approved grading rules for the species of wood used.

Use the following table as information for minimum and maximum permissible spans for 50 millimeters by 250 millimeters (2 inches by 10 inches) or wider wood planks:

Table 1 – Material

	Full Thickness Undressed Lumber			Nominal Thickness Lumber[1]	
Working load, kPa (p.s.f.)	1.2 (25)	2.4 (50)	3.6 (75)	1.2 (25)	2.4 (50)
Permissible span, m (ft)	3.0 (10)	2.4 (8)	1.8 (6)	2.4 (8)	1.8 (6)

[1]Nominal thickness lumber not recommended for heavy-duty use.

Where a difference of 0.6 meter (2 feet) or more exists between levels on a scaffold or work platform, stairs, ramp, or similar access way is constructed.

A gate, or other method recommended by the scaffold manufacturer or Competent Person, is used to provide a safe transition from the access point (such as a ladder) to the scaffold platform and to maintain the integrity of the scaffold's guardrail system.

NOTE: *A gate is the preferred method of access. Use of gates is strongly encouraged unless configuration of the scaffold precludes their use.*

Ensure that the scaffold is plumb and level, and that supported scaffold poles, legs, posts, frames and uprights bear on base plates and mud sills or base plates and other adequate foundation such as concrete slab flooring.

Where leveling of a scaffold is necessary, use screw jacks or other equivalent stable means.

When erecting or dismantling scaffolds, commence using safety harnesses and lanyards at the 6-foot working level whenever feasible, if performing work at a stationary location for a period of time, and where components used for tie-off are deemed to be strong and stable enough to allow their use.

Do not inter-mix or modify scaffold components manufactured by different manufacturers or composed of dissimilar materials without written approval from the Competent Person.

Place scaffolds as close to the work as possible. If fall protection is provided by the structure on which the work is being performed (such as a building or wall), allow no more than 350 millimeters (14 inches) between the scaffold platform and the structure.

Install standard guardrails at a height of 6 feet unless a lower height is appropriate (such as an adjacent impalement hazard).

Secure each platform. Extend the platform ends 150 millimeters to 300 millimeters (6 inches to 12 inches) past the centerline of their supports unless restrained by hooks, cleats, or other means.

Where a scaffold's height exceeds 4 times its smallest base dimension, guy, tie, or otherwise brace the scaffold at the closest horizontal member to the 4:1 height. Repeat every 7.9 meters (26 feet) vertically (6.1 meters [20 feet] for those scaffolds less than or equal to 0.9 meter [3 feet] in width) and 9.1 meters (30 feet) horizontally.

Install protection (such as toe boards, netting, and/or fencing) where employees located on or below a scaffold are exposed to the possibility of objects falling from overhead.

Mark or post scaffold areas with warning flags or barriers where vehicular traffic is present.

Attach a completed scaffold status tag near the access point of any scaffold being used, erected, or dismantled, as follows:

- **Red Tag** – KEEP OFF/DO NOT USE – prohibits use of the scaffold, as the unit is undergoing some stage of erection, alteration, or dismantling.

- **Yellow Tag** – SPECIAL CONDITIONS/ADDITIONAL CONTROLS – indicates special safety measures for use of the scaffold; examples include PFAS or head protection.

- **Green Tag** – SCAFFOLD IS ERECTED TO CODE/APPROVED FOR USE – indicates that the scaffold is complete, meets erection standards, and is safe to use for its intended purpose.

Dismantle the scaffold shortly after being notified that the work requiring the scaffold is complete.

SCAFFOLD USE

Users conduct the following activities.

NOTE: *Refer to form Scaffold Checklist – User,* A-6004-301 *for scaffold use criteria.*

Use scaffolds only for their intended purpose.

Do not use ladders, unstable objects, or makeshift devices to increase the working height of scaffolds.

EXCEPTION
Ladders may be used on large area scaffolds when certain criteria are met and only with written approval from the Competent Person.

Do not straddle, stand on, or work outside guardrails.

Use mobile scaffolds on firm, level surfaces. Lock the casters or wheels before using. To move, apply force as close to the base as practical, but not more than 1.5 meters (5 feet) above the supporting surface.

Do not "ride" on a scaffold while it is being moved; remove or secure any tools/materials on the platform.

Use only approved access means to ascend and descend scaffolds (stairs, attached ladder, or specially designed end frame); do not use crossbracing or siderails.

NOTE: *Scaffold framing may be used for access only if its horizontal members have been specifically designed and constructed for such use.*

Keep only tools and materials necessary to perform the task on the scaffold platform. Control slipping or tripping hazards by removing or securing the tools/materials.

Use fall protection (guardrailing system or PFAS) when working 1.8 meters (6 feet) or more above a lower level when appropriate. [Refer to practice MSC-PRAC-30472, *Fall Protection,* .]

Work only from scaffolds having a completed yellow or green scaffold status tag and a current scaffold inspection tag affixed. Comply with special conditions/additional controls noted on the tag(s).

Do not modify or remove a scaffold system/component or scaffold status tag. Notify supervision immediately if a scaffold is damaged, weakened, or otherwise deficient.

Do not position yourself or use tools/equipment where there is a possibility of contact with energized overhead electrical lines. When scheduled to work within 6.1 meters of the centerline of the nearest conductor, contact the electric utilities organization having jurisdiction 48 hours in advance. They will specify requirements and clearance distances for the work activity.

TRAINING

A Competent Person provides training on erection, maintenance, inspection, use, and dismantling of scaffolds as outlined below. All training is documented.

Erectors

Scaffold erectors and maintenance/repair persons are trained specifically in the following areas, as applicable:

- Nature of potential scaffold hazards (such as falls and falling objects)
- Procedure for erecting, maintaining, inspecting, and dismantling scaffolds; associated fall hazards; and falling object protection systems
- Design criteria and load-carrying capacities
- Other pertinent requirements

Users

Scaffold users are trained in hazard recognition and control measures associated with the type of scaffold being used, including the following:

- The nature of electrical, fall, and falling object hazards and the correct procedures for dealing with these hazards
- Proper use of scaffold and material handling on scaffolds
- Pre-use inspection criteria
- Use of fall protection and fall protection systems (erecting, maintaining, and disassembling)

- Maximum intended load and load-carrying capacities
- Other pertinent requirements.

Employees, who erect, dismantle, or use scaffolds are retrained when necessary to ensure their proficiency or provide updated information on hazards or changes.

Inspectors

Scaffold inspectors are trained in the following areas, as applicable:

- Nature of potential scaffold hazards (such as falls and falling objects)
- Procedure for erecting, maintaining, inspecting, and dismantling scaffolds; associated fall hazards; and falling object protection systems
- Design criteria and load-carrying capacities
- Other pertinent requirements

FORMS

Scaffold Checklist – Inspection, A-6004-298
Scaffold Checklist – User, A-6004-301
Scaffold Checklist – Erection, A-6004-302
Tag
Scaffold Inspection Tag, A-6004-306

RECORDS IDENTIFICATION

Records Capture Table

Name of Document	Submittal Responsibility	Retention Responsibility
Scaffold Checklist – Inspection, A-6004-298	Construction Supervisor/Superintendent	Project Document Control
Scaffold Checklist – User, A-6004-301	Construction Supervisor/Superintendent	Project Document Control
Scaffold Checklist – Erection, A-6004-302	Construction Supervisor/Superintendent	Project Document Control

REFERENCES

MSC-PRAC-30374, *Construction Work Package*
MSC-PRAC-30376, *Construction Document Control*
MSC-PRAC-30452, *Program General Requirements*,
MSC-PRAC-30472, *Fall Protection*,