Scaffolding Procedure

1. Purpose

The purpose of the Westlake Lake Charles Facility Scaffolding Procedure is to protect employees from the hazards associated with falls from scaffolds and to provide guidelines for erecting, inspecting, permitting, using and dismantling of scaffolding.

2. Scope

This procedure cannot nor is intended to be all inclusive of scaffolding requirements but as a general guideline for safe work practices. Additional requirements are found in the standards and are covered in other scaffold training classes. These guidelines are intended for Westlake and Contractor personnel who use scaffolds in this facility.

3. Responsibilities

Everyone working with scaffolding has certain responsibilities. It is very important that every individual be familiar with his/her responsibilities.

Health and Safety Department

- Review and update the Westlake Lake Charles Scaffolding Procedure to conform to current standards and policies as needed.

- Monitor compliance with standards set forth in the program by periodic inspections and feedback.

- Assist Supervisors by providing training as set forth in this procedure.

- Provide guidance for the proper selection and use of appropriate scaffolding equipment and personnel protective equipment to meet the requirements of this program.

- Ensure that all employees required to use scaffolding have received the appropriate level of training required by subpart L of 29 CFR1926.454.

- Assure contractor personnel who erect and/or utilize a scaffold have been trained to the level required by subpart L of 29 CFR1926.454.
Supervisors

- Provide necessary personal protective equipment for scaffold users.
- Ensure that all employees perform their assigned duties as outlined in this procedure.
- Take appropriate action whenever an employee under his/her direction fails to follow safety precautions outlined in this procedure.

Scaffold Users

- All Westlake personnel (operations, maintenance) who utilize a scaffold shall have completed the Westlake “Scaffold User CBT” or its equivalent as a minimum requirement.
- Inspect the scaffold for visible defects or damage prior to accessing the scaffold. Report any defects to the Supervisor to be addressed. If the scaffold has a green tag, remove the tag until the scaffold has been examined by a Competent Person.
- Use required personal fall protection equipment if required.
- Never attempt to alter or repair any scaffold without proper training and authorization.
- **The building, moving, alteration, or dismantling of a scaffold shall be supervised by a competent person.** If you have not been trained – don’t.
- All scaffolds shall be inspected and permitted for that shift by a competent person. The scaffold permit shall be re-validated by a competent person **prior to first use of scaffold for that shift.**
- Scaffold users shall read scaffold tags prior to using any scaffold. The instructions or warnings outlined on the tag must be followed.

Scaffold Erectors/Dismantlers

- Scaffold builders will place the scaffold holder at approximately eye level close to the access ladder and **inside the swing gate on the top level** for easy identification.
- Contractors required to build scaffolds on which Westlake/Contractors personnel may work will furnish Westlake, Lake Charles with the following: a letter on company letterhead signed by an authorized company official stating
employee(s) name and a statement that employees have been trained in regulatory requirements set forth in subpart L 29 CFR 1926 or have had either extensive experience in erecting/altering/dismantling this type of scaffolding and or have been trained in proper erection/altering/dismantling techniques by the manufacturer or manufacturer’s representative.

- The scaffolding will contain at least one extra plank for every level in height of the scaffold. This is to be used by the builders for standing area at each level while building or dismantling the scaffold and by no means to be used by scaffold users.
- Access to the scaffold while being built should be done by installing the access ladder at every level as soon as possible while it is being built and not by scaling the structure or vertical members. The same consideration should be given while dismantling the scaffold also.
- Where feasible, the individual scaffold builder(s) engaged in the actual building or dismantling of a scaffold shall wear personal fall protection when ten (10) feet or more above the ground level. When this is not feasible or practical, the competent scaffold builder must initiate a Non Standard Work Practice (NSWP) in order to deviate from this requirement.
- When erecting scaffold in a congested area, barricade tape shall be used to keep other workers away from dangerous areas. A barricade tag will be placed on the barricade tape indicating the purpose of the barricade. Non-observance of barricades by unauthorized personnel should be reported to a supervisor immediately for corrective action.
- To prevent the snagging of clothing or personal fall protection, toe boards should be nailed from the outside when using two headed nails. Wire wraps should be bent at the ends so as not to create a snagging or puncture situation.
- Runners shall be placed as close to the base as possible for scaffold stability.

4. Training

Training Requirements for Scaffold Users

- Training requirements apply to all employees who perform work while on a scaffold.
- The training shall include the following topics as applicable:
  - The proper use of the scaffold, and the proper handling of materials on the scaffold.
o The maximum intended load and load carrying capacities of the scaffolds used.
o The nature of any overhead work/falling objects, personal fall protection, and electrical hazards in the work area.
o The correct procedures for dealing with electrical hazards.
o The proper use of personal fall protection equipment, and fall protection systems.
o The overhead work/falling object protection systems being used.

Training Requirements for Scaffold Erectors/Dismantlers

- Training requirements shall comply with subpart L 29 CFR 1926.450-454 and Appendix D. They shall also adhere to recommended guidelines from the scaffold manufacturer.

Retraining for both Scaffold Erectors and Scaffold Users is required when:

- There are changes in the types of scaffolds, fall protection, falling object protection or other equipment or procedures related to the hazards associated with site scaffolding.
- Retraining shall also be conducted for scaffold users when an employee demonstrates a lack of skill, understanding or where inadequacies are noted in an affected employees work involving scaffolds. This would indicate that the employee has not retained proficiency.

5. Inspection and Storage

Competent Person

- A Competent Person shall visually inspect all scaffolds prior to scaffold usage for meeting regulatory requirements. They will sign and affix a green tag if the scaffold is in full compliance. If the scaffold does not meet full compliance or has additional hazards the Competent Person will hang a yellow tag. This tag will serve as a warning that the scaffold does not meet full regulatory compliance and workers may need to wear personal fall protection while working from the scaffold depending upon the deficiencies found. The scaffold may be re-evaluated after an alteration and upon meeting full compliance, be tagged with a green tag by a competent person thus allowing work to be done on the scaffold without personal fall protection.

Inspection
6. Procedures

   General Requirements

   • All scaffolds shall be designed by a Qualified Person or manufacturer, and shall be erected, loaded and used in accordance with that design or manufacturer’s specifications.
• Scaffolds shall be erected, altered, moved, or dismantled only under the supervision and direction of a competent person qualified in scaffold erection, moving, dismantling or alteration. Such activities shall be performed only by experienced and trained employees selected for such work by the competent person.

• Employees required to perform work on scaffold platforms shall be trained in recognition and the control measures for the hazards associated with the type(s) of scaffold being used.

• Scaffolds shall be capable of supporting, without failure, its own weight and at least 4 times the maximum intended load.

• Scaffolds with work platforms of 4 feet or more above the ground or next lower level should have a complete guardrail system. Toe boards are also required on scaffolds ten (10) feet and above when there is a risk of material, tools, and equipment being incidentally kicked, bumped or otherwise dislodged off the scaffold deck onto personnel below.

• Scaffold shall be tightly planked for the full width of the scaffold with openings between planking not to exceed one (1) inch. The front edge of all platforms shall not exceed 14 inches from the face of the working surface unless guardrail systems are installed along the front edge and/or personal fall arrest systems are used (18 inches for plastering or lathing).

• Scaffold platforms shall be a minimum of 18 inches wide.

• Cross braces shall not be used as substitutes for handrails or midrails

• All scaffold decking shall be Scaffold Grade or equivalent.

• The footing or anchorage for all scaffolds shall be sound, rigid, and capable of supporting the loaded scaffold without settling or displacement. Unstable objects such as barrels, boxes, loose bricks, or concrete blocks will not be used to support scaffolds. Mud sill’s and base plates are required when scaffolds are supported on the ground surface. When using leveling jacks, 3/4 of its length must remain inside the scaffold leg.

• The poles, legs, or uprights of scaffolds shall be plumb and securely braced to prevent swaying and displacement.

• Manufactured scaffold components shall not be modified. Scaffold components manufactured by different manufacturers or of dissimilar metals shall not be intermixed unless the components fit together without force,
modification and the scaffolds structural integrity is maintained as determined by a Competent Person.

- Supported scaffolds with a height to base width ratio of more than three to one (3:1) shall be restrained from tipping by guying, tying, bracing, or equivalent means.

- After the initial tie-in (restraint) at three times the minimum base width, subsequent tie-ins must be at no greater than 10 feet maximum vertical intervals.

- The top guy, tie or brace of completed scaffolds shall be installed as close as possible to the top of the scaffold at each end and at horizontal intervals not to exceed 30 feet.

- Diagonal bracing (minimum of two braces per section) shall be installed on each vertical section up to deck height using alternating sequence.

- Design drawings must be made prior to erection and kept on site for any scaffold over 125’ high. They must be designed by a licensed professional engineer competent in this field.

- All scaffolds (i.e. supported, suspended/hanging type scaffolds) requiring a cantilever or knee-out shall be built under the direction of a competent erector and inspected by two (2) competent scaffold inspectors.

- Suspended scaffolding and similar types of work platforms shall be designed by a qualified person and inspection by a competent person prior to usage.

Scaffolding Decking (Boards)

- Only proper scaffold grade board material or equivalent will be used.

- No paint or material which would affect proper visual board inspection or work surface safety may be applied to scaffold boards. Scaffold boards may be painted 10 to 12 inches on each end to denote use and/or length for scaffold decking only.

- Scaffold boards are not to extend over their end supports more than 12” or less than 6” so that it could not be used as part of the platform.

- All decking (on curved platforms) shall be overlapped a minimum of 12” or secured from movement.
Do not use cleated boards with cleats turned up.

**Scaffolding Tags**

- The most effective means of communication between the scaffold builder and the scaffold user is a scaffold tag.
- As the scaffolding is being erected, moved or dismantled, a tag holder will be placed on the scaffold. **No work may be done from a scaffold that does not have a tag in the tag holder.** Tag holders shall also be used to indicate damaged or defective scaffolding, noting the defect on the tag holder.
- Upon notification of completion of the scaffold, a Competent Person will put either a **Green Tag or a Yellow Tag** into the tag holder, sign and date the tag.
- The Green Tag indicates that the scaffold is in full compliance with the regulations and is ready for use **without additional fall protection** once it is signed and dated unless circumstances change that warrants a yellow tag.
- A Yellow Tag shall be used to indicate to personnel that a hazard exists that the user needs to know that there are other hazards present that necessitates additional consideration and that **personal fall protection may be required** to meet regulatory requirements of fall protection. These hazards are to be noted on the yellow tag to notify users of those hazards. This tag will be used when obstructions prohibit installation of all required guardrail or planking components or head bumping hazards are present, etc.
- The tags should be placed at eye level on or near the access ladder and inside the swing gate on the top level.
- A competent person shall ensure that the scaffold is erected properly and the tag attached is properly and completely filled out. Scaffold permits shall be re-validated by a competent person **prior to first use of scaffold for that shift.**
- If the scaffold needs to be altered in any way, a competent scaffold builder must be contacted to authorize the change and a new inspection conducted.
- An untagged scaffold **shall not** be used.
- **NO ONE OTHER THAN A COMPETENT PERSON SHALL SIGN THE SCAFFOLD TAG INDICATING USAGE.**
Access to Scaffold Platforms

- When scaffold platforms are more than 2 feet above or below a point of access, an attached ladder or other approved ladder/stair system must be used by scaffold users to reach the platform.

- Hook-on and attachable ladders shall be positioned so that their bottom rung is not more than 24 inches above the scaffold supporting level.

- An access ladder or equivalent safe access shall be provided. The recommended means of construction will be to extend a horizontal member, one ladder width plus 1 foot, beyond the corner of the scaffold so the ladder can be supported against it at a right angle to the platform. The access ladder should extend 4 rungs (preferably 5) above the work deck. Where not feasible, the supervisor of the employee(s) using the scaffold may approve an alternate means of access.

- Scaffold bracing shall not be used for access or climbing. Integral prefabricated scaffold access frames must be specifically designed and constructed for use as ladder rungs and may be used for access to platforms.

- Rest platforms must be installed at 30-foot intervals.

- Effective March 1, 2019, where a fall equal to or greater than 20 feet is possible while accessing/egressing from a scaffold, a fall arrest system shall be required. An example might be a davit arm system to assist worker access to higher scaffold platforms levels. A Self Retracting Lifeline (yo-yo’s) shall be used to assist the user in ascending and descending of the access ladder.

- Self-closing gates (with toe plates) will be utilized at working levels when possible to reduce crawling over the top rail for access and egress.

- Hook-on and attachable ladders shall be specifically designed for use with the type of scaffold being used.

- Rungs must be uniformly sized and spaced with a maximum interval between rungs of 16 3/4 inches.

- Rungs must be at least 11 1/2 inches long.

Scaffold Use

- Only trained scaffold builders erecting, repairing or dismantling a scaffold are allowed to work on a scaffold without a green or yellow tag in the holder.
• Scaffolds shall not be loaded in excess of their maximum intended loads or rated capacities.
• Debris shall not be allowed to accumulate on platforms.
• Do not stack brick, tile, block, or similar material higher than 24” on the scaffold deck unless netting is installed from the platform to the top rail to secure material.
• Makeshift devices, such as boxes and barrels shall not be used on top of scaffold platforms to increase the working level height.
• Working height of the employees shall not be increased by means of standing on anything other than the scaffold flooring (this includes ladders, boxes, scaffold railings, cans or other devices).
• Where swinging loads are being hoisted onto or near scaffolds such that the loads might contact the scaffold, tag lines or equivalent measures to control the loads shall be used.
• Scaffolds shall not be moved or dismantled without first removing all loose tools, materials, and equipment resting on the scaffold deck.
• Working from scaffolds during storms or high wind situations is prohibited. Particular attention should be paid to scaffolding containing visqueen because of the ‘sail effect’. Employees shall not work on scaffolds which are covered with ice or snow, unless involved in removing ice or snow from scaffold.
• The clearance between scaffolds and power lines shall be as follows: Scaffolds shall not be erected, used, dismantled, altered, or moved such that they or any conductive material handled on it might get closer to exposed and energized lines than as follows:

<table>
<thead>
<tr>
<th>Insulated Lines (VOLTAGE)</th>
<th>MINIMUM DISTANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 300 Volts</td>
<td>3 Feet</td>
</tr>
<tr>
<td>330 Volts to 50 KV</td>
<td>10 Feet</td>
</tr>
<tr>
<td>More than 50 KV</td>
<td>10 Feet Plus 0.4 Inches for each 1 KV over 50 KV</td>
</tr>
</tbody>
</table>

or
2 times the length of the line insulator but never less than 10 feet

<table>
<thead>
<tr>
<th>Uninsulated Lines (VOLTAGE)</th>
<th>MINIMUM DISTANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 50 KV</td>
<td>10 Feet</td>
</tr>
<tr>
<td>More than 50 KV</td>
<td>10 Feet plus 0.4 inches for each 1 KV over 50 KV</td>
</tr>
</tbody>
</table>

or

2 times the length of the line insulator, but never less than 10 feet

7. Fall Prevention and Fall Protection

Each employee on a scaffold more than 4 feet above the ground or next lower level shall be protected from falling to that lower level by means of a complete guardrail system (fall prevention) or approved personal fall protection. This requirement applies to both scaffold users and scaffold builders.

Fall Prevention

- All scaffold guardrail systems must meet the design/performance requirements set forth in this Section and by OSHA standards.
- Guardrail systems shall be installed along all open sides and ends of platforms.
- Guardrail systems shall be completely installed before the scaffold is released for use other than erection and dismantling crews.
- Guardrail systems shall be surfaced to prevent injury to employees such as punctures or lacerations.
- Top edge height of top rails or equivalent member shall be installed between 39 and 45 inches.
• Each top rail or equivalent member shall be capable of withstanding, without failure, a force applied in any downward or outward direction of at least 200 pounds.

• Rope, No. 9 wire, banding material, etc., shall not be used as a top rail or midrail.

• Midrails shall be installed at a height approximately midway between the top edge of the guardrail system and the platform surface. When intermediate members are used as a midrail, they shall not be more than 19 inches apart.

• Each midrail or equivalent member shall be capable of withstanding, without failure, a force applied in any downward or outward direction of at least 150 pounds.

• Where guardrail systems are incomplete, missing, or moved to allow access for work, personal fall protection shall be used on the affected platform(s).

• In cases where a building, structure, equipment, or piping is preventing the proper installation of a complete scaffold guardrail, a competent person will determine whether these obstructions meet or exceed the applicable guardrail requirements and warrant the use of a personal fall protection system. The competent person should use the Scaffold Tag to indicate when these conditions are acceptable.

**Personal Fall Protection**

• Approved personal fall protection is required any time employees work on, erect, modify or dismantle a scaffold which is not protected by a complete deck and guardrails.

• Employees may not climb a ladder with anything in their hands. Tools and materials may be carried on their person or hoisted up/down by rope or other devices.

**Falling Object Protection**

• If a falling object hazard is present, additional protection from falling hand tools, materials, debris and other small objects should be accomplished
through the installation of toe boards, barricades, mesh/screens, debris nets, or catch platforms/canopies. Where workers could reasonably be expected to walk in an area under where a scaffold is being erected, dismantled, or modified, barricade tape **must** be used to restrict the area below from personnel travel until the scaffold work is complete. Where persons are required to work or pass under the scaffold, scaffolds shall be provided with a screen between the *toe board and the top guardrail*, extending along the entire opening, consisting of number 18 gauge U.S. standard wire ½ in. mesh, or equivalent (such as the orange mesh material). Attempts should be taken to minimize all openings in the scaffold deck. The area must be barricaded with a minimum yellow barricade tape. Barricade tags shall be placed on the barricade tape stating, “Caution, Working Overhead.”. Where the job is of a short duration, an employee stationed on the ground directing individuals away from the hazard can serve as an acceptable alternative.

- Barricade tape shall also be used when the scaffold has work being done that compromises the scaffolding decking such as holes or gaps. A barricade tag shall be placed on the barricade tape stating, “Caution, Working Overhead.”.

- In some cases, due to the nature or configuration of the scaffold/work area, debris nets, catch platforms or canopy structures may be erected to protect workers from falling objects, rather than the protective mechanisms listed above.

**Dismantling Scaffolds**

When scaffold use is complete, scaffolds shall be dismantled only under the direction of a competent person **qualified** in scaffold erection, moving dismantling or alteration. Dismantling shall be performed only by **experienced and trained employees** selected for such work by the competent person. **Do Not remove any ties until the scaffold dismantling has reached the elevation of the tie.**

Scaffolds should be removed as soon as practical.

**Elevated Work Platforms**

Metal pipelines, which are adequately supported and are of sufficient size, may be used temporarily as a scaffold support. If used as a platform support must have specific approval of the operations Supervisor owning the pipeline. Consideration must be given to the contents of the lines and stresses imposed on the pipeline, the weight imposed on the platform, etc. All other uses of pipelines as a means of access or support to work
platforms is prohibited. These platforms should be dismantled as soon as the job is finished.

Temporary platforms that are not four feet in height from grade level are not considered scaffolding. Temporary platforms at or above four feet are considered scaffolding and must meet the erection, use, inspection and permitting criteria defined above.

Definitions

- **Brace** - A rigid connection that holds one scaffold member in a fixed position with respect to another member, or to a building or structure

- **Cleat** - A structural block used at the end of a platform to prevent the platform from slipping off its supports. Cleats are also used to provide footing on sloped surfaces such as crawling boards

- **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.

- **Coupler** - A device for locking together the tubes of a tube and coupler scaffold

- **Guardrail** - A vertical barrier, consisting of, but not limited to, top rails, midrails, and posts, erected to prevent Employees from falling off a scaffold platform or walkway to lower levels

- **Lifeline** - A component consisting of a flexible line that connects to an anchorage at one end to hang vertically (vertical lifeline), which serves as a means for connecting other components of a personal fall arrest system to the anchorage

- **Maximum Intended Load** - The total load of all persons, equipment, tools, materials, transmitted loads, and other loads reasonably anticipated to be applied to a scaffold or scaffold component at any one time

- **Outrigger** - The structural member of a supported scaffold used to increase the base width of a scaffold in order to provide support for and increased stability of the scaffold
• **Point Loading** - a disproportional amount of the total weight is subjected on one particular point of the platform. Weight should be evenly distributed across the surface of the platform where possible.

• **Qualified Person** - One who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and demonstrated his/her ability to solve or resolve problems related to the subject matter, the work or the project. **NOTE: A Registered Professional Engineer (registered in the state of Louisiana) is required to design any scaffold exceeding 125 feet in height.**

• **Rated Load** - The manufacturer’s specified maximum load to be lifted by a hoist or to be applied to a scaffold or scaffold component. Duty usually determines the working levels to be occupied and load put upon each.

• **Light Duty Scaffold** - scaffold designed and constructed to carry a working load not to exceed 25 pounds per square foot. (up to 4 working levels)

• **Medium Duty Scaffold** - scaffold designed and constructed to carry a working load not to exceed 50 pounds per square foot. (2 working levels)

• **Heavy Duty Scaffold** - scaffold designed and constructed to carry a working load not to exceed 75 pounds per square foot. (1 working level)

• **Scaffold** - Any temporary elevated platform (supported or suspended) and its supporting structure (including points of anchorage), used for supporting Employees or materials or both

• **Single Pole Scaffold** - A supported scaffold consisting of a platform(s) resting on bearers, the outside ends of which are supported on runners secured to a single row of posts or uprights, and the inner ends of which are supported on or in a structure or building wall

• **System Scaffold** - any scaffold consisting of posts, with fixed connection points that accept runners, bearers, and diagonals that can be interconnected at predetermined levels.

• **Three Points of Contact** - Term used for a method of safe ladder climbing where between a climber’s two hands and two feet, at least three of them are in contact with the ladder rungs/rails at all times while ascending or descending the ladder.
• **Tube and Coupler Scaffold** - A supported or suspended scaffold consisting of a platform(s) supported by tubing, erected with coupling devices connecting uprights, braces, bearers, and runners

• **User** - Any person who accesses the scaffolds to perform any activity

**References**

• OSHA 29CFR 1926 Subpart L
• ANSI A10.8-2001
• OSHA Directives – CPL 2-1.23
• Training – Appendix D