Document Revision Change Table

Revision Number	Revision Description	Revised By	Revision Date
Rev. 04	Procedure Review. No changes.	G. Dawson	11/12/20
Rev. 04	Added requirement for all scaffolds over 6 feet to have swing gates (4.1.1).	G. Dawson	05/15/17
Rev. 03	Review of procedure and requirement for swinging gates for scaffolds	G. Dawson	10/15/14
Rev. 02	Added 4.2.24 and 4.2.25 to address tripping hazards	S.Simoneaux	10/18/11
Rev. 01	*Considered as starting document for revision change table*		

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1. PURPOSE

This procedure establishes the basic requirements for the safe design, construction, use and inspection of scaffolds.

2. SCOPE

This procedure applies to all scaffolds constructed and used on the Beaumont site.
NOTE: The use of shore or lean-to scaffolds is prohibited.

3. DEFINITIONS

3.1. 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.

3.2. Mobile Scaffold

A powered or unpowered, portable, caster or wheel-mounted supported scaffold.

3.3. Qualified Person

One who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experience, has successfully demonstrated his/her ability to solve or resolve problems related to the subject matter, the work, or the project.

3.4. Supported Scaffold

One or more platforms supported by outrigger beams, brackets, poles, legs, uprights, posts, frames, or similar rigid support.

3.5. Suspension Scaffold

One or more platforms suspended by ropes or other non-rigid means from an overhead structure(s).

3.6. 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.

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4. PROCEDURE

4.1. Scaffold Builders and Users

4.1.1. Scaffold Erectors

It is the responsibility of employees erecting scaffolds to inspect all scaffold materials and erect scaffolds that comply with this procedure and applicable Federal standards. Scaffolds must be designed by a qualified person and constructed in accordance with that design. Scaffold materials must be carefully inspected at the time of scaffold erection by the scaffold erector's competent person and defective components discarded. Scaffolds must only be erected, moved, dismantled, or altered under the supervision and direction of a competent person. **It is a requirement at the Beaumont site for all scaffolds over 6 feet to have a spring-loaded swinging gate.**

4.1.1.1 Upon completion of scaffold erection each scaffold shall be inspected, approved and signed-off by a competent person. A tagging system will be used to ensure that any known hazards associated with the scaffold are documented and communicated to each user.

4.1.1.2 Tags will be used as follows:

- Green tag - Indicates that scaffold is complete and fall protection is not required for BASF personnel. Contractor personnel will follow their respective company's fall protection requirements and procedures.
- Yellow tag – Indicates that there are hazards associated with the erected scaffold. i.e., hole in deck, missing handrail, head-knocker. The tag will indicate what the hazard is and will also inform the user of fall protection requirements
- Red tag – Indicates that this scaffold may not be used.

NOTE: This does not relieve the scaffold user from his/her responsibility of inspecting the scaffold themselves before use.

4.1.2. Scaffold Inspection

Scaffolds and scaffold components on which the contractor company's employees will be working shall be inspected for visible defects by the contractor company's competent person before each work shift and/or after any occurrence which could affect a scaffold's structural integrity. Scaffolds in use shall be inspected, approved and signed-off by the contractor company's competent person on each work shift where work will occur. A tagging system will be used to ensure that this requirement is met It is the responsibility of BASF employee(s) who will access erected scaffold(s) to inspect each scaffold prior to working off scaffold(s) to ensure that each scaffold will comply with all minimum safety requirements.

4. PROCEDURES cont'd

4.1. Scaffold Builders and Users cont'd.

4.1.3. Scaffold User

Each employee who performs work while on a scaffold will be trained to recognize the hazards associated with scaffold types that may be used on BASF premises and to understand the procedures necessary to control or minimize those hazards.

The training shall include the following areas, as applicable:

- The nature of any electrical hazards, fall hazards and falling object hazards in the work area
- The correct procedures for dealing with electrical hazards and for erecting, maintaining, and disassembling the fall protection systems and falling objects protection systems being used.
- The proper use of the scaffold, and the proper handling of materials on the scaffold
- The maximum intended load and the load-carrying capacities of the scaffold
- Any other pertinent requirements concerning the particulars of the tasks being performed related to the scaffold usage.

It is the responsibility of all employees prior to scaffold use to:

- Inspect scaffolds prior to use
- Red-tag scaffolds if deficiencies are noted
- Observe safe working rules when using scaffolds
- Abide by cautionary information posted on the scaffold, if applicable.

NOTE: Scaffolds must only be erected, moved, dismantled, or altered under the supervision and direction of a competent person. Only experienced and trained employees shall perform activities involving scaffolding placement and structure.

4.1.4. Scaffold Requester

Persons requesting a scaffold must give specific information about the installation of the scaffold: location, time, special design needs, weight of extra material to be placed on scaffold, etc.

4.2. General Requirements

4.2.1. Unless otherwise provided in this procedure, each scaffold and scaffold component must be capable of supporting, without failure, at least four (4) times the maximum intended load.

4.2.2 Scaffolds shall not be moved or altered horizontally while in use or occupied.

4. PROCEDURES cont'd

4.2. General Requirements cont'd.

4.2.3 Scaffold platforms must be at least 18 inches wide when possible. When not possible, personnel working on the scaffold shall be protected from falling by guardrails and/or a personal fall arrest system.

4.2.4 Space between platform units (scaffold boards, metal scaffold platforms, etc.) must not exceed one inch unless special circumstances warrant wider spacing. In those circumstances, plywood decking of at least ¾ inch construction grade must be nailed in place to cover the openings. At no time shall openings exceed 9½ inches.

Note: Decking should be free of obvious defects, such as cracks, knot holes, etc. and be uncontaminated by chemicals, paint, concrete or other substances which may weaken the plywood decking.

4.2.5 Plywood decking may be used to span an opening up to a maximum width of two (2) feet. The decking shall extend the full width of standard scaffold planking that shall be used for support.

4.2.6 The plywood decking shall be nailed in place. Nails must be driven their full length.

4.2.7 Scaffold units must extend over their end supports a minimum of six (6) inches or be otherwise secured in place. Scaffold units shall not extend more than twelve (12) inches over their end supports.

4.2.8 Where overlapping is necessary, boards must be overlapped a minimum of twelve (12) inches and nailed together or otherwise restrained to prevent movement.

4.2.9 Scaffold components manufactured by different manufacturers shall not be intermixed unless the components fit together without force, are not modified, and the scaffold's structural integrity is maintained. Written approval from each scaffold manufacturer must be available for review whenever scaffold components are intermixed.

4.2.10 Guardrails (top-rail, mid-rail, and toe board) must be installed on all sides of work platforms, except as provided in Section 4.1.3. The top-rail shall be between 39 inches and 45 inches above the platform. The mid-rail shall be approximately halfway between the top-rail and scaffold platform. The toe-board shall be a minimum of 3 ½ inches high. Cross-braces are not allowed in lieu of top-rails or mid-rails.

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4. PROCEDURES cont'd

4.2. General Requirements cont'd.

4.2.11 Slippery conditions on scaffolds must be eliminated as soon as possible after they occur.

4.2.12 Scaffold materials, design and construction shall be as specified in applicable OSHA Standards, in addition to the following:

- When toe-boards are nailed in place, 16d Duplex nails are to be used and nailed from the outside of the working area of the scaffold.
- When overlapping boards are on a platform, to secure the use of Number 12d Common nails are required. The nail must be driven flush with the board. This will eliminate the hazard of the nail puncturing someone under the deck.
- When using plywood, 6d Common nails must be used to provide a smoother working surface and less chance of trip hazards.

4.2.13 Where physical obstructions such as overhead lines, existing platforms, etc. prevent scaffolds from being erected in accordance with OSHA Standards, special steps must be taken to meet the intent of OSHA.

4.2.14 Scaffolds must be free of all material, equipment and trash prior to being dismantled.

4.2.15 All scaffolds above 125 feet shall be designed by a registered professional engineer and copies of the scaffold design made available.

4.2.16 Scaffolds must be erected in accordance with manufacturer's recommendations.

4.2.17 Safe access must be provided to all scaffold platforms. Cross-braces shall not be used as a means of access.

4.2.18 When hook-on and attachable ladders are used on scaffolds more than thirty-five (35) feet high, they must have rest platforms at 35-foot maximum vertical intervals.

4.2.19 All scaffolds must be equipped with access ladders with rungs designed to withstand a working load of two hundred (200) pounds.

4.2.20 Access ladders shall be secured within two (2) feet of their top and two (2) feet of their bottom. Ladders longer than ten (10) feet require additional securing as close to their mid-point as practicable.

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4. PROCEDURES cont'd

4.2. General Requirements cont'd.

4.2.21 Access ladders shall be maintained in good condition at all times and inspected prior to each use. Ladders shall be kept clean of oil and grease.

4.2.22 Mobile equipment (forklifts, front-end loaders, etc.) shall not be used to support scaffold platforms unless approved in writing from the mobile equipment manufacturer.

4.2.23 Scaffolds must not be erected, used, dismantled, altered, or moved such they or any conductive material handled on them might come closer than ten (10) feet to exposed and energized power lines, unless the lines have been de-energized or have had protective coverings installed.

4.2.24 Tripping hazards shall be identified and marked on all scaffolds that require access underneath to perform work.

4.2.25 All scaffolds shall have barricading in place to prevent access underneath unless access is needed to perform tasks. In this case the requirements stated in 4.2.24 shall be followed

4.2.26 Scaffolds shall be provided with a screen between the toeboard and the guardrail, extending along the entire opening, consisting of No. 18 gauge U.S. standard Wire one-half inch mesh or the equivalent, where persons are required to work or pass under the scaffolds.

4.2.27 Scaffolds located in process areas or any other location at the site that meet the intent of section **4.2.24** and have a work platform six (6) foot or greater will require this type of protection.

Note - It is a requirement at the Beaumont site for all scaffolds over 6 feet to have a spring-loaded swinging gate.

4. PROCEDURES cont'd

4.3. Types of Scaffolds

4.3.1. Supported Scaffolds

A. Supported scaffolds with height to base width of more than 4 to 1 must be restrained from tipping by guying, tying, bracing, or equivalent means.

B. When possible, scaffolds shall be securely braced or anchored to a wall, existing structure, or equipment at intervals not to exceed thirty (30) feet in length or twenty-six (26) feet in height.
NOTE: If this is not possible, then the scaffold will be designed and approved by a registered professional engineer.

C. Footings must be level, sound, rigid, and capable of supporting the loaded scaffold without settling or displacement.

D. Unstable objects shall not be used as working platforms or to support platform units.

E. Poles, legs, posts, frames and uprights must be plumb and braced to prevent swaying and displacement.

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4. PROCEDURES cont'd

4.3. Types of Scaffolds cont'd.

4.3.2. Suspension Scaffolds

A. Suspension outrigger bracing shall be made of structural metal or equivalent strength material and must be restrained to prevent movement.

B. Counterweights must be made of non-flowable material. Material such as sand and gravel must not be used. Only those items specifically designed as counterweights shall be used to counterweight scaffold systems. Counterweights must be secured by mechanical means to outrigger beams.

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

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

E. Direct connections to roofs and floors and counterweights used to balance adjustable suspension scaffolds must be capable of resisting at least four (4) times the tipping moment imposed by the scaffold operating at either the rated load of the hoist or 1.5 (minimum) times the tipping moment imposed by the scaffold operating at the stall load of the hoist, whichever is greater. The stall load shall not exceed three (3) times the scaffold's rated load.

F. Suspension ropes must be shielded from heat-producing processes and protected against corrosive substances when corrosive substances are being used on the scaffold.

G. When performing welding from a suspension scaffold, protective measures as outlined in applicable OSHA standards must be taken to reduce the possibility of welding current arcing through the suspension rope.

H. All employees performing work off of suspension scaffolds must be protected from falling by standard guardrails and toe-boards and a personal fall arrest system. The personal fall arrest system shall be securely attached to a substantial member of the structure (not the scaffold) or to securely rigged lifelines.

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4. PROCEDURES cont'd

4.3. Types of Scaffolds cont'd.

4.3.3. Tube and Coupler Scaffolds

A. When platforms are being moved to the next level, the existing platform must be left un disturbed until the new bearers have been set in place and braced prior to receiving the new platform.

B. Transverse bracing, forming an "X" across the width of the scaffold, shall be installed at the scaffold ends and at least every third set of posts horizontally (measured from only one end) and every fourth runner vertically. Bracing shall extend diagonally from the inner or outer posts or runners, upward to the next outer or inner posts or runners.

C. On straight run scaffolds, longitudinal bracing across the inner and outer rows of posts shall be installed diagonally in both directions and shall extend from the base of the end posts upward to the top of the scaffold at approximately a 45-degree angle. On scaffolds whose length is greater than their height, such bracing shall be repeated, beginning at least every fifth post. On scaffolds whose length is less than their height, such bracing shall be installed from the base of the end posts, upward to the opposite end posts, and then in alternating directions until reaching the top of the scaffold. Bracing must be installed as close as possible to the intersection of the bearer and post or runner and post.

D. Where conditions preclude the attachment of bracing to posts, bracing must be attached to the runners as close to the post as possible. Bearers shall be installed transversely between posts and, when coupled to the posts, shall have the inboard coupler bear directly on the runner coupler. When the bearers are coupled to the runners, the couplers shall be as close to the posts as possible. Bearers must extend beyond the posts and runners and must provide full contact with the coupler.

E. Runners shall be installed along the length of the scaffold, located on both the inside and outside posts. When tube and coupler guardrails are used on outside posts, they may be used in lieu of outside runners. Runners must be interlocked on straight runs to form continuous lengths and shall be coupled to each post. The bottom runners and bearers must be located as close as possible to the base.

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4. PROCEDURES cont'd

4.3. Types of Scaffolds cont'd.

4.3.4. Fabricated Frame Scaffolds

A. When moving platforms to the next level, the existing platform must be left undisturbed until the new end frames have been set in place and braced prior to receiving the new platforms.

B. Frames and panels must be braced by cross, horizontal, or diagonal braces, or combination thereof, which secure vertical members together laterally. The cross-braces must be of such length as will automatically square and align vertical members so that the erected scaffold is always plumb, level and square. All brace connections shall be secured.

C. Frames and panels must be joined together vertically by coupling or stacking pins or equivalent.

4.3.5. Mobile Scaffolds

A. Scaffolds must be braced by cross, horizontal or diagonal braces, or combination thereof, to prevent racking or collapse of the scaffold and to secure vertical members together laterally so as to automatically square and align the vertical members. Scaffolds must be plumb, level and squared. All brace connections must be secured.

B. Manual force used to move the scaffold must be applied as close to the base as practicable, but not more than five (5) feet above the supporting surface.

C. Scaffolds must be stabilized to prevent tipping during movement.

D. The rolling surface must be free of material that may tip the scaffold while it is being moved.

E. Employees are not allowed to ride on mobile scaffolds while the scaffold is being moved.

F. Casters and wheels must be locked when the scaffold is in use and shall be pinned or otherwise secured in scaffold legs.

4.4. Training

4.4.1. All BASF employees required to work on or around scaffolds will comply with the requirements of this procedure and successfully complete all required BASF approved training before accessing a scaffold.

4.4.2. Contractor personnel will be trained and will comply with the requirements of this procedure in addition to other applicable Federal Standards.

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4. PROCEDURES cont'd

4.4. Training cont'd.

4.4.3. Retraining of scaffold users is required when a supervisor, either BASF or contractor, has reason to believe that an employee lacks the skill or understanding needed for safe work involving the erection, use or dismantling of scaffolds, the supervisor shall ensure that the employee receives the necessary retraining to regain former proficiency. Retraining is required in as least the following situations:

A. Where changes at the worksite present a hazard about which an employee has not been previously trained; or

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

C. Where inadequacies in an affected employee's performance involving scaffolds indicate that the employee has not retained the required proficiency.

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5 RESPOSIBILITIES

5.1 Site Leadership
Has primary responsibility for implementation of this procedure.

5.2 Health and Safety
Has primary responsibility for the initiation, re-issuance, administration, and/or interpretation of this procedure.

5.3 Employees and Contractors
Have primary responsibility for adherence to procedure including identifying deficiencies in the procedure and identifying, reporting and correcting activities not in compliance with the procedure.

REFERENCES

* OSHA Standard 29 CFR 1910.28 Safety requirements for scaffolding
* OSHA Standard 29 CFR 1926.450 Scope, application and definitions
* OSHA Standard 29 CFR 1926.451 General requirements
* OSHA Standard 29 CFR 1926.452 Additional requirements applicable to specific types of scaffolds
* OSHA Standard 29 CFR 1926.453 Aerial lifts
* OSHA Standard 29 CFR 1926.454 Training requirements Subpart L, Appendices A, B, C, D, and E

ATTACHMENTS

A – Scaffold Inspection Checklist

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ATTACMENT – A

SCAFFOLD INSPECTION CHECKLIST

Working Levels and Planking	OK	N/A
Levels are completely planked (No gap greater than 9.5 inches)		
Gap between planks is less than 1 inch		
Minimum of three 2” x 10” boards per working level		
Planks are tied together with #9 wire		
Planks are cleated or extend between 6” & 18” beyond support		
No ladders or other devices are used to increase working level height		
Planks are not damaged and or are not painted		
Wood planks are not placed near high heat source		
Easy access to each working level		
Planks are not slippery or icy		
Ladders		
Ladders are installed to prevent need to climb on scaffold		
Rest platforms are located at least every 30 feet (20 recommended)		
Falling Objects		
Toe-boards are in place		
Safety mesh installed from toe-board to mid-rail if personnel working under scaffold or materials stacked over toe-board		
Barricades erected to limit personnel passing under scaffold		
Limited amount of materials stored on scaffold with loose items in containers		
Proper techniques used to place material onto scaffold		
Overhead protection in place where required		
Personnel Fall Protection		
Handrails (between 36-42 inches) and mid-rails installed		
Safety harness an adequate tie-offs as required		
Retractable lifelines installed on long ladders		
Scaffold Stability		
Scaffold is plumb and level		
Scaffold has secure footing, base plates, and/or mud sills		
Scaffold is tied to structure (vert. & horiz.) as required		
Adjusting screws used for uneven grades instead of blocks		
Cross bracing is used as required		
Scaffolding will not be overloaded		
Other Issues		
Fire protection and other safety equipment are not blocked		
Electrical hazards are identified and controlled		
Overhead obstructions are identified and controlled		
Scaffold is not over 125 feet high unless designed by a registered engineer		
Dissimilar metals are not used (prevents galvanic action)		
Scaffold Tag Requirement		
Before accessing a Green or Yellow scaffold tag must be signed, dated, and affixed by the scaffold builder’s competent person.		
Red tag or NO tag affixed to scaffold – DO NOT USE		

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