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D. Scaffolds

1. General Requirements for All Scaffolds

- a. Scaffolds shall be furnished and erected in accordance with this standard for persons engaged in work that cannot be done safely from the ground or from solid construction, except that ladders used for such work shall conform to 1910.25 and 1910.26.
- b. The footing or anchorage for scaffolds shall be sound, rigid, and capable of carrying the maximum intended load without settling or displacement. Unstable objects such as barrels, boxes, loose brick, or concrete blocks shall not be used to support scaffolds or planks.
- c. Scaffolds and their components shall be capable of supporting without failure at least four times the maximum intended load.
- d. Scaffolds and other devices mentioned or described in this section shall be maintained in safe condition. Scaffolds shall not be altered or moved horizontally while they are in use or occupied.
- e. Any scaffold damaged or weakened from any cause shall be immediately repaired and shall not be used until repairs have been completed.
- f. Scaffolds shall not be loaded in excess of the working load for which they are intended.
- g. All load-carrying timber members of scaffold framing shall be a minimum of 1,500 lbs.- f/in². (Stress Grade) construction grade lumber. All dimensions are nominal sizes as provided in the American Lumber Standards, except that where rough sizes are noted, only rough and undressed lumber or the size specified will satisfy minimum requirements.
- h. All planking shall be Scaffold Grade as recognized by grading rules for the species of wood used. The maximum permissible spans for 2- X 9-inch or wider planks are shown in the following table:

	Material				
	Full thickness undressed lumber			Nominal thickness lumber	
Working load (p.s.f)	25	50	75	25	50
Permissible span (ft.)	10	8	6	8	9

- i. The maximum permissible span for 1 1/4 x 9-inch or wider plank of full thickness is 4 feet with medium loading of 50 p.s.f.
- j. Nails or bolts used in the construction of scaffolds shall be of adequate size and in sufficient numbers at each connection to develop the designed strength of the scaffold. Nails shall not be subjected to a straight pull and shall be driven full length.
- k. All planking or platforms shall be overlapped (minimum 12 inches) or secured from movement.
- l. An access ladder or equivalent safe access shall be provided.
- m. Scaffold planks shall extend over their end supports not less than 6 inches nor more than 18 inches.
- n. The poles, legs, or uprights of scaffolds shall be plumb, and securely and rigidly braced to prevent swaying and displacement.
- o. Materials being hoisted onto a scaffold shall have a tag line.
- p. Overhead protection shall be provided for men on a scaffold exposed to overhead hazards.
- q. 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.
- r. Employees shall not work on scaffolds during storms or high winds.
- s. Employees shall not work on scaffolds which are covered with ice or snow, unless all ice or snow is removed and planking sanded to prevent slipping.
- t. Tools, materials, and debris shall not be allowed to accumulate in quantities to cause a hazard.
- u. Only treated or protected fiber rope shall be used for or near any work involving the use of corrosive substances or chemicals.
- v. Wire or fiber rope used for scaffold suspension shall be capable of supporting at least six times the intended load.
- w. When acid solutions are used for cleaning buildings over 50 feet in height, wire rope supported scaffolds shall be used.
- x. The use of shore scaffolds or lean-to scaffolds is prohibited.
- y. Lumber sizes, when used in this section, refer to nominal sizes except where otherwise stated.
- z. Scaffolds shall be secured to permanent structures, through use of anchor bolts, reveal bolts, or other equivalent means. Window cleaners' anchor bolts shall not be used.
- aa. Special precautions shall be taken to protect scaffold members, including any wire or fiber ropes, when using a heat-producing process.

2. Tube and Coupler Scaffolds

- a. A light-duty tube and coupler scaffold shall have all posts, bearers, runners, and bracing of nominal 2-inch O.D. steel tubing. The posts shall be spaced no more than 6 feet apart by 10 feet along the length of the scaffold. Other structural metals when used must be designed to carry an equivalent load.
- b. A medium-duty tube and coupler scaffold shall have all posts, runners, and bracing of nominal 2-inch O.D. steel tubing. Posts spaced not more than 6 feet apart by 8 feet along the length of the scaffold shall have bearers of nominal 2 ½-inch O.D. steel tubing. Posts spaced not more than 5 feet apart by 8 feet along the length of the scaffold shall have bearers of nominal 2-inch O.D. steel tubing. Other structural metals when used must be designed to carry an equivalent load.
- c. A heavy-duty tube and coupler scaffold shall have all posts, runners, and bracing of nominal 2-inch O.D. steel tubing, with the posts spaced not more than 6 feet apart by 6 feet 6 inches along the length of the scaffold. Other structural metals when used must be designed to carry an equivalent load.
- d. Tube and coupler scaffolds shall be limited in heights and working levels to those permitted by the manufacturer or a registered professional engineer. Drawings and specification of all tube and coupler scaffolds designed by a registered professional engineer must make copies available to the employer and for inspection purposes.
- e. All tube and coupler scaffolds shall be constructed and erected to support four times the maximum intended loads by 29 CFR 1910.25 and .26, or as set forth in the specifications by a registered professional engineer, copies which shall be made available to the employer and for inspection purposes.
- f. All tube and coupler scaffolds shall be erected by competent and experienced personnel.
- g. Posts shall be accurately spaced, erected on suitable bases, and maintained plumb.
- h. Runners shall be erected along the length of the scaffold located on both the inside and the outside posts at even height. Runners shall be interlocked to form continuous lengths and coupled to each post. The bottom runners shall be located as close to the base as possible. Runners shall be placed not more than 6 feet 6 inches on centers.
- i. Bearers shall be installed transversely between posts and shall be securely coupled to the posts bearing on the runner coupler. When coupled directly to the runners, the coupler must be kept as close to the posts as possible.
- j. Bearers shall be at least 4 inches but not more than 12 inches longer than the post spacing or runner spacing. Bearers may be cantilevered for use as brackets to carry not more than two planks.
- k. 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.
- l. Longitudinal diagonal bracing shall be installed at approximately a 45-degree angle from near the base of the first outer post upward to the extreme top of the scaffold. Where the longitudinal length of the scaffold permits, such bracing shall be duplicated beginning at every fifth post. In a similar manner longitudinal diagonal

bracing shall also be installed from the last post extending back and upward toward the first post. Where conditions preclude the attachment of this bracing to the posts, it may be attached to the runners.

- m. The entire scaffold shall be tied to and securely braced against the building at intervals not to exceed 30 feet horizontally and 26 feet vertically.
- n. Guardrails not less than 2 x 4 inches or the equivalent and not less than 36 inches or more than 42 inches high, with a mid-rail, when required, of 1 x 4-inch lumber or equivalent, and toeboards, shall be installed at all open sides on all scaffolds more than 10 feet above the ground or floor. Toeboards shall be a minimum of 4 inches in height. Wire mesh shall be installed in accordance with paragraph (a)(17) of this section.

3. Tubular Welded Frame Scaffolds

- a. Metal tubular frame scaffolds, including accessories such as braces, brackets, trusses, screw legs, ladders, etc., shall be designed and proved to safely support four times the maximum intended load.
- b. Spacing of panels or frames shall be consistent with the loads imposed.
- c. Scaffolds shall be properly braced by cross bracing or diagonal braces, or both, for securing vertical members together laterally, and the cross braces shall be of such length as will automatically square and aline vertical members so that the erected scaffold is always plumb, square, and rigid. All brace connections shall be made secure.
- d. Scaffold legs shall be set on adjustable bases or plain bases placed on mud sills or other foundations adequate to support the maximum intended load.
- e. The frames shall be placed one on top of the other with coupling or stacking pins to provide proper vertical alinement of the legs.
- f. There uplift may occur, panels shall be locked together vertically by pins or other equivalent suitable means.
- g. Guardrails not less than 2 x 4 inches or the equivalent and not less than 36 inches or more than 42 inches high, with a mid-rail, when required, of 1- x 4-inch lumber or equivalent, and toeboards, shall be installed at all open sides on all scaffolds more than 10 feet above the ground or floor. Toeboards shall be a minimum of 4 inches in height. Wire mesh shall be installed in accordance with paragraph (a)(17) of this section.
- h. All tubular metal scaffolds shall be constructed and erected to support four times the maximum intended loads.
- i. To prevent movement, the scaffold shall be secured to the building or structure at intervals not to exceed 30 feet horizontally and 26 feet vertically.
- j. Maximum permissible spans of planking shall be in conformity with paragraph (a)(9) of this section.
- k. Drawings and specifications for all frame scaffolds over 125 feet in height above the base plates shall be designed by a registered professional engineer and copies made available to the employer and for inspection purposes.

- l. All tubular welded frame scaffolds shall be erected by competent and experienced personnel.
- m. Frames and accessories for scaffolds shall be maintained in good repair and every defect, unsafe condition, or noncompliance with this section shall be immediately corrected before further use of the scaffold. Any broken, bent, excessively rusted, altered, or otherwise structurally damaged frames or accessories shall not be used.
- n. Periodic inspections shall be made of all welded frames and accessories, and any maintenance, including painting, or minor corrections authorized by the manufacturer, shall be made before further use.