

Tube and Coupler Scaffolds — Planning and Design

Workers building scaffolds risk serious injury from falls and tip-overs, being struck by falling tools and other hazards, and electrocution from energized power lines. Before starting any scaffold project, the employer should conduct a hazard assessment to ensure the safety of workers.

A tube and coupler scaffold has a platform(s) supported by tubing, and is erected with coupling devices connecting uprights, braces, bearers, and runners (see Fig. 1). Due to their strength, these scaffolds are frequently used where heavy loads need to be carried, or where multiple platforms must reach several stories high. These scaffolds can be assembled in multiple directions, making them the preferred option for work surfaces with irregular dimensions and/or contours.

Scaffold Planning

Review blueprints, work orders, the project schedule and other written requirements to determine where these scaffolds should be used. Next, select the right size scaffold for each job. Scaffolds are generally rated as light, medium or heavy duty. Light-duty scaffolds can support a limited number of workers and hand tools (25 lbs. per sq. ft.). Medium-duty scaffolds must be able to safely hold workers, hand tools, and the construction materials being installed (50 lbs. per sq. ft.). Heavy-duty scaffolds must support workers, tools and the weight of stored materials (75 lbs. per sq. ft.).

The following factors should be considered in the planning phase:

- The shape and structure of the building to be scaffolded.
- Distinctive site conditions and any special features of the building structure in relation to the scaffold (i.e., overhead electric power lines or storage tanks). Also consider the proximity and condition of surrounding buildings.
- Weather and environmental conditions.
- Fall protection requirements for workers using scaffolds, such as guardrail systems or personal fall arrest systems.

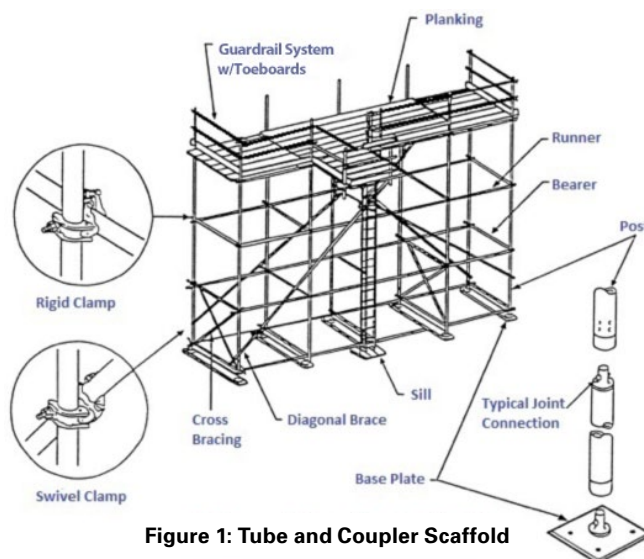


Figure 1: Tube and Coupler Scaffold

- The type and amount of scaffold equipment needed to access all areas to be worked on.
- Proper storage and transporting of scaffolding components, materials and equipment.
- The manner in which workers will access the scaffold (i.e., via ladders, stair rail systems, etc.).

Design

Scaffolds must be designed by a qualified person. Tube and coupler scaffolds over 125 feet (38 m) in height must be designed by a registered professional engineer. Tube and coupler scaffold design must comply with 29 CFR §§ 1926.451–.452. The scaffold design must include:

- Proper materials to construct the scaffold.
- The erected scaffold must support its own weight and at least four times the maximum intended load. To accomplish this, the scaffold design must incorporate a realistic assessment of maximum intended loads on the scaffold at all stages of erection and loading. For example, if wrapped with mesh,

will the scaffold support expected wind loads? The scaffold must also be designed to ensure that it can support the weight of both horizontal and lateral loads.

- Construction and loading must comply with engineered designs and manufacturers' requirements.
- Guardrails and toeboards.
- The amount of time needed to erect and dismantle the scaffold.

For more information on scaffolding, see OSHA's Safety and Health Topics page at www.osha.gov/SLTC/scaffolding.

Contact OSHA

For more information, to report an emergency, fatality or catastrophe, to order publications, to file a confidential complaint, or to request OSHA's free on-site consultation service, contact your nearest OSHA office, visit www.osha.gov, or call OSHA at 1-800-321-OSHA (6742), TTY 1-877-889-5627.

Worker Rights

Workers have the right to:

- Working conditions that do not pose a risk of serious harm.
- Receive information and training (in a language and vocabulary the worker understands) about workplace hazards, methods to prevent them, and the OSHA standards that apply to their workplace.
- Review records of work-related injuries and illnesses.
- File a complaint asking OSHA to inspect their workplace if they believe there is a serious hazard or that their employer is not following OSHA's rules. OSHA will keep all identities confidential.
- Exercise their rights under the law without retaliation, including reporting an injury or raising health and safety concerns with their employer or OSHA. If a worker has been retaliated against for using their rights, they must file a complaint with OSHA as soon as possible, but no later than 30 days.

For more information, see [OSHA's Workers page](#).

This is one in a series of informational fact sheets highlighting OSHA programs, policies or standards. It does not impose any new compliance requirements. For a comprehensive list of compliance requirements of OSHA standards or regulations, refer to Title 29 of the Code of Federal Regulations. This information will be made available to sensory-impaired individuals upon request. The voice phone is (202) 693-1999; teletypewriter (TTY) number: 1-877-889-5627.

For assistance, contact us. We can help. It's confidential.



www.osha.gov (800) 321-OSHA (6742)



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