

TECH SHEET

Two-Point Suspension Scaffolding

EMC Insurance Companies®

Two-point adjustable suspension scaffolds, also known as swing-stage scaffolds, are perhaps the most common type of suspended scaffold. Hung by ropes or cables connected to stirrups at each end of the platform, they are typically used by window washers, but play a prominent role in high-rise construction as well. Significant preplanning should occur when using this type of scaffold, as many new or existing buildings may not accommodate them. If there is any question as to where the supports should be anchored, an engineer should be consulted to review the structure and support members.

Before Erecting Suspended Scaffolds

- Inspect the work area for hazards such as electrical wires, obstructions that could overload or tip the scaffold when it is raised or lowered or inadequate supporting structure.
- Assure the roof or supporting structure is capable of safely supporting at least four times the rated load of the hoist and rigging equipment.
- Read and understand all operating and maintenance instructions provided by the manufacturer of the hoisting equipment and scaffold components.
- Verify that testing and maintenance of hoists has been completed according to manufacturer's recommendations.

Erecting Suspended Scaffolds

- Install or relocate each suspended scaffold only under the direct supervision of a competent person.
- Verify that the weight of personnel, materials, hoist, components and scaffold do not exceed the rating of the hoists and rigging system used.

- Assure each tieback for an outrigger beam, parapet clamp or roof hook has the equivalent strength of the hoisting rope.



- Install tiebacks without slack and preferably at 90° angles to the face of the building.
- Securely fasten counterweights to the outrigger beam. Counterweights should be made only of nonflowable material and permanently marked with their weight.
- Properly calculate the counterweights for outriggers when used. Counterweight formula:

$$cw = \frac{W \times SF \times B}{A}$$

Where:

W = the load on each outrigger beam

SF = safety factor (4x)

B = distance of the outrigger beam from the fulcrum point (where it rests on support) out toward the end where the load is located

A = distance of the outrigger beam from the fulcrum point toward the roof or support structure

Note: The counterweight amount determined is for EACH outrigger beam.

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Scaffold Use

- Inspect all rigging and equipment prior to each use and verify it has not been moved or tampered with.
- Inspect wire rope during ascent and descent to check for damage such as bird-caging or broken strands. Lubricate as required and remove from service if damaged.
- Preload wire rope and equipment with the maximum working load before starting work. Retighten wire rope rigging clamps and recheck rigging according to manufacturer's recommendations.
- Use only approved rigging clamps and the correct number: a minimum of three clamps is required. Never place the dead end of wire rope under the saddle of the bolt. This is commonly stated as "never saddle a dead horse."
- Use thimbles and shackles at all wire rope suspension terminations.
- Always maintain at least four wraps of wire rope on drum-type hoists.
- Each person working on a scaffold should wear a properly attached fall arrest device. Each person should be tied off to his/her own anchorage point, separate from any rigging of the suspended scaffold.
- When using vertical lifelines in a fall protection system, protect the lifelines at sharp edges and corners, and suspend them freely from the structural members of the scaffold and the building facade.
- Assure that the electrical power source and all power source connections are properly grounded before using electrically operated hoists.

- When welding from suspended scaffolds, ensure all wire rope is insulated above and below the platform and at suspension points and that the platform is grounded to the structure. Always follow manufacturer's instructions when performing this type of work.
- Do not operate or use suspended scaffolds in high winds or hazardous weather conditions.

Dismantling Suspended Scaffolds

- Verify the rigging has not been altered in any way that would make the system unsafe.
- Prior to dismantling, determine what effect removing a component or loosening a connection will have on the strength of the remaining scaffold assembly.
- Disassemble the platform prior to removing any counterweights or tiebacks.
- Lower the components in a safe and controlled manner.
- Handle the assembly components with care, as your safety and those of others depends on their condition for future use.

For Additional Information

Occupational Safety & Health Administration:

www.osha.gov

- Scaffold eTool

Scaffold Industry Association, Inc.:

www.scaffold.org