



SUSPENDED SCAFFOLDING SECTION

SSFI TECHNICAL BULLETIN

Tiebacks: United States and Canadian Requirements

A tieback is a taut wire rope used to prevent temporary rigging devices from falling off the structure in an emergency. Inadequate counterweights, parapet failure, improper spacing of suspension ropes: all could lead to a catastrophic event where the tieback will prevent more serious damage or injury. Requirements for tiebacks vary between the US and Canada.

In the US:

- OSHA CFR 1926.341(d)(3)(vii) requires that tiebacks be equivalent in strength to the suspension ropes. If a 1,500 lb. rated load hoist uses 3/8 inch diameter rope, then the tieback must be also 3/8 inch or greater. A 5/16 inch tieback is a violation.
- CFR 1926.451(d)(3)(viii) requires 2 tiebacks at opposing angles when it is not possible to place the outrigger beam perpendicular to the face of the building. ANSI/IECA I14.1 17.5h) requires the tieback be parallel to the beam centerline.
- CFR 1926.451(d)(3)(ix) requires that tiebacks be secured to a structurally sound anchorage on the building. No definition is given as to what constitutes a structurally sound anchorage, so the competent person must determine this. The only guideline is that standpipes, vents, other piping systems, and electrical conduit are not adequate. ANSI /IWCA I14.1 5.7.17(c) requires a certified anchorage that is 5,000lbs. minimum.
- CFR 1926.451(d)(3)(x) requires that tiebacks are either perpendicular to the face of the building or that 2 opposing angle tiebacks be used. A single tieback at an angle is prohibited. If strictly interpreted, this creates very tough requirements. If there is no flexibility, a tieback 2 degrees from perpendicular requires 2 at opposing angles. It is extremely difficult to find good anchorages directly behind the rigging device and finding 2 at opposing angles is even more difficult. Canada is more flexible in its regulations.

This Technical Bulletin was prepared by members of the SSFI Suspended Scaffolding Section.

SSFI is a trade association comprising manufacturers of shoring, scaffolding, forming, and suspended scaffolding. The institute focuses on engineering and safety aspects of scope products.

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This bulletin has been developed as an aid to users of suspended scaffolding equipment. SSFI is not responsible for the use of this bulletin.

All of the above requirements apply to counterweighted outrigger beams, parapet clamps, cornice hooks, roof hooks, or similar devices.

The attachment point of the tieback to the support device is not specified. Most individuals attach to the rear of the beam; however, some people prefer the front, particularly if the beam is spliced, the rationale being if the splice fails, and you lose the front of the beam, it doesn't help if the tieback only keeps the rear section of the beam on the roof.

Parapet clamps are better secured if tied down as opposed to back as the forces on a clamp are upward as well as outward.

Certain applications require additional rigging:

- Welding requires that the tieback have an insulator at its attachment point to the support device. Insulated thimbles are readily available from scaffold suppliers.
- ANSI A10.8 requires that secondary wire ropes used on platforms with multiple levels or overhead protection be tied back from their attachment point. The attachment point for the secondary rope may be to the same support device as long as it is a separate shear point (a different shackle). The tieback from that shackle must be to an independent anchorage.

In Canada:

- CSAZ271 safety Code for Suspended Elevating Platforms:
 - 6.3.1.1. Allows a tieback anchor to be up to 25 degrees offset distance from the point of suspension.
 - 7.1.3.1 Requires that the anchor for a tieback resist a force in any direction of 5000lbs. (22.2kN) fracture load. A lower strength is allowed if certain conditions are met.

The tieback is like a lifeline for the support device. It will keep the support device from falling and possibly hitting workers or bystanders. It is imperative to respect the regulations applicable to your area.

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