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## Reducing Falls during Residential Construction: Working in Attics

Protecting workers from falls while working in attics can be challenging for some employers. This fact sheet highlights some of the hazards of attic work and details some practical methods that employers can use to protect those who work in attics. The fall protection methods in this fact sheet may not be suitable in all situations. Employers are responsible for ensuring compliance with applicable OSHA requirements.

### Risk of Falls during Attic Work

Working in a low attic can be difficult. Employees moving through these spaces may be exposed to fall hazards at the openings between truss chords. Exposed nails, cables, wires, low-hanging rafters or cross-beams, hot conditions, poor lighting, and truss chords hidden by deep insulation, can add to the risk of falling.

The employer must provide a training program for each worker who might be exposed to fall hazards. The program must train each worker to recognize fall hazards and to know the procedures to follow to minimize these hazards. For fall protection training requirements, refer to 29 CFR 1926.503. In all cases, employers must evaluate the hazards and take steps to reduce the risk of falls. Using appropriate fall protection measures reduces risks and saves lives.

### Reducing Risks:

#### Planning

Planning for the use of fall protection equipment can help employers protect workers from falls. Before beginning the job, identify fall protection needs. Survey the attic to determine what fall protection systems can be used. Plan ahead and have those systems in place before the workers report to the job.

#### Determining Structural Integrity of Truss Chords or Ceiling Joists

Workers can be injured if they fall through the ceiling to a lower level. Employers must determine if the walking/working surfaces in attics have the strength and structural integrity to support workers safely (29 CFR 1926.501(a)(2)). Only after this determination has been made should workers be allowed to enter those areas. Using a piece of plywood or planking to stand on could improve footing.



If the area around the plywood or planking is open, and the work area is 6 feet or more above a lower level, the employer generally must ensure that workers use fall protection meeting OSHA requirements (29 CFR 1926.501(b)(13)). Employers also may choose to use scaffolds or ladders for attic work.

(Note: OSHA's fall protection requirements for residential construction work performed on scaffolds and ladders are specified in Subpart L and Subpart X, respectively, not in 29 CFR 1926.501(b)(13)).

#### Personal Fall Arrest System (PFAS)

A PFAS is a tool available to workers performing attic work. In fact, a PFAS is the system of choice for many workers who work at heights. However, a malfunction in any component of a PFAS could be disastrous for a worker. Always follow the manufacturer's instructions on selecting, installing and using PFAS components correctly.

### **Personal Fall Arrest System**

A PFAS is designed to safely stop a fall before the worker strikes a lower level. The system includes three major components:

- A. An **anchorage** to which the other components of the PFAS are rigged.
- B. A full **body harness** worn by the worker.
- C. A connector, such as a **lanyard or lifeline**, linking the harness to the anchorage. A rip-stitch lanyard, or deceleration device, is typically a part of the system.



For more information on the requirements for a PFAS, refer to 29 CFR 1926.502(d).

Remember that workers must use full-body harnesses in fall arrest systems. Body belts can cause serious injury during a fall, and OSHA prohibits their use as part of fall arrest systems.

### **Attaching Anchors**

OSHA requires that anchors for a PFAS either be able to hold at least 5,000 pounds per worker or maintain a safety factor of at least two (twice the impact load) and be used under the supervision of a qualified person. Always follow the manufacturer's instructions or consult a qualified person when installing anchors to ensure that they are strong enough to hold the sudden weight of a falling worker. There are anchorages available on the market that can meet OSHA's strength requirements if they are installed in accord with the manufacturer's instructions, with the right number of properly-sized nails or screws. Also, employers may find it possible to provide safe anchorage down the length of an entire attic by properly installing an engineered horizontal lifeline.

### **Pre-installed Anchorage Systems**

With advance planning on new construction projects, some anchorage systems can be pre-installed before the trusses are lifted into position. This method permits workers to attach their lanyards

to an anchorage immediately upon entering the attic space.

**Consider leaving anchors in place:** Where practical, employers should consider leaving anchors in place. This can make the current job simpler and reduce the burden for attic workers in the future.



A pre-installed attic anchorage system.

### **Fall Restraint**

Fall restraint systems prevent falls by keeping the worker from reaching a fall hazard. While fall restraint systems are not mentioned in OSHA's fall protection rules, OSHA will accept a properly utilized fall restraint system in place of a personal fall arrest system when the restraint system is rigged so that the worker cannot reach the fall hazard. In effect, (if properly used) the system tethers a worker in a manner that will not allow a fall of any distance. A fall restraint system is comprised of a body belt or body harness, an anchorage, connectors, and other necessary equipment. Other components typically include a lanyard, and may also include a lifeline and other devices. Note: A self-retracting lanyard is not appropriate for a fall restraint system unless the worker cannot reach the fall hazard when the lanyard is fully extended.

Always follow the manufacturer's instructions or consult a qualified person to ensure proper installation of anchor points. OSHA recommends that fall restraint systems have the capacity to withstand 3,000 pounds of force or twice the maximum expected force that is needed to restrain the worker from exposure to the fall hazard. As a result, fall restraint may be a viable way to provide fall protection in situations in which the employer has concerns about the adequacy of available anchorage points for fall arrest equipment.

### **Safety Net Systems**

In some situations, employers may be able to place safety nets underneath truss chords to prevent workers from falling to the level below. Safety nets must be installed to prevent contact with the surface or structures below them. For requirements for safety nets, refer to 29 CFR 1926.502(c)–Safety Net Systems.

## **Scaffolds**

Scaffolds, stationary or mobile, can be erected below the attic work area. Workers on the scaffold can work between truss chords and joists to perform some installation activities. For requirements for scaffolds, refer to 29 CFR 1926 Subpart L – Scaffolds.

## **Ladders**

Like scaffolds, A-frame and platform ladders can provide safe platforms from which workers on the lower level can perform some tasks in the attic above. Consult 29 CFR 1926 Subpart X – Stairways and Ladders for ladder safety requirements.

## **Written Fall Protection Plans**

When working at heights of 6 feet or greater, if the employer does not use ladders, scaffolds, aerial lifts or fall restraint systems and can demonstrate that it is not feasible or would create a greater hazard

to use conventional fall protection equipment (guardrails, safety nets or a PFAS), the employer must develop a written site-specific fall protection plan in accord with 29 CFR 1926.502(k). The plan must be prepared by a qualified person. This person could be the owner, the supervisor, or any other worker who has extensive knowledge, training and experience with fall protection and is able to solve problems relating to fall protection.

The site-specific fall protection plan must document, for each location, why the use of conventional fall protection equipment is not feasible or will create a greater hazard. The plan must also describe the alternative methods that the employer will use so that workers are protected from falls. Workers and their supervisors must be trained on the proper use of those other fall protection methods.

### **OSHA Standard:**

#### **29 CFR 1926 Subpart M – Fall Protection**

Available online at:

[www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=STANDARDS&p\\_id=10922](http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10922).

OSHA Residential Fall Protection Web Page:

[www.osha.gov/doc/topics/residentialprotection/index.html](http://www.osha.gov/doc/topics/residentialprotection/index.html).

### **OSHA Compliance Guidance:**

#### **Compliance Guidance for Residential Construction – STD 03-11-002 (dated 12/16/2010)**

Available online at:

[www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=DIRECTIVES&p\\_id=4755](http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=DIRECTIVES&p_id=4755).

**State Plan Guidance:** Twenty-seven states or territories currently operate their own OSHA-approved state plans. State plan workplace health and safety standards must be at least as effective as comparable Federal OSHA standards. State plans have the option of promulgating more stringent standards and, therefore, may have additional requirements for residential

construction. For more information on state plans and their requirements, please visit: [www.osha.gov/dcsp/osp/statestandards.html](http://www.osha.gov/dcsp/osp/statestandards.html).

**Help for Employers:** OSHA's On-site Consultation Program offers free and confidential advice to small and medium-sized businesses in all states across the country, with priority given to high-hazard worksites. On-site consultation services are separate from enforcement and do not result in penalties or citations. Consultants from state agencies or universities work with employers to identify workplace hazards, provide advice on compliance with OSHA standards, and assist in establishing safety and health management programs. To locate the OSHA Consultation Program nearest you, call 1-800-321-OSHA (6742) or visit: [www.osha.gov/dcsp/smallbusiness/consult.html](http://www.osha.gov/dcsp/smallbusiness/consult.html).

Almost every OSHA area office has a compliance assistance specialist to assist employers in complying with OSHA standards. To find the compliance assistance specialist nearest you, call 1-800-321-OSHA (6742) or visit: [www.osha.gov/html/RAMap.html](http://www.osha.gov/html/RAMap.html).

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