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## FALL PREVENTION

### Plan, Provide, Train: Three Steps to Preventing Falls

**F**alls are the leading cause of deaths in the construction industry. Most of these deaths are preventable. Falls can be prevented and lives can be saved through three simple steps:

1. Plan
2. Provide
3. Train

#### **PLAN** ahead to get the job done safely

When working from heights, such as ladders, scaffolds, and roofs, employers must plan projects to ensure that the job is done safely. Begin by deciding how the job will be done, what tasks will be involved, and what safety equipment may be needed to complete each task.

When estimating the cost of a job, employers should include safety equipment, and plan to have all the necessary equipment and tools available at the construction site. For example, in a roofing job, think about all of the different fall hazards, such as holes or skylights and leading edges, then plan and select fall protection suitable to that work, such as personal fall arrest systems (PFAS).

#### **PROVIDE** the right equipment

Workers involved in construction work who are six feet or more above lower levels are at risk for serious injury or death if they should fall. To protect these workers, employers must provide fall protection and the right equipment for the job, including the right kinds of ladders, scaffolds, and safety gear.

Different ladders and scaffolds are appropriate for different jobs. Always provide workers with the kind they need to get the job done safely. For roof work, there are many ways to prevent falls. If workers use personal fall arrest systems (PFAS), provide a harness for each worker who needs to tie off to the anchor. Make sure the PFAS fits, and regularly inspect all fall protection equipment to ensure it's still in good condition and safe to use.

**Read More on Page 2** ▶

## TRAIN everyone to use the equipment safely

Falls can be prevented when workers understand proper set-up and safe use of equipment, so they need training on the specific equipment they will use to complete the job. Employers must train workers in hazard recognition and in the care and safe use of ladders, scaffolds, fall protection systems, and other equipment they'll be using on the job. Here are some simple safety tips to share with your workers.

### Preventing Falls from Ladders

- ✓ Choose the right ladder for the job
- ✓ Maintain three points of contact
- ✓ Secure the ladder
- ✓ Always face the ladder
- ✓ Guard or cover all holes, openings, and skylights

### Preventing Falls from Scaffolds

- ✓ Use fully planked scaffolds
- ✓ Ensure proper access to scaffold
- ✓ Plumb and level
- ✓ Complete ALL guardrails
- ✓ Ensure stable footing
- ✓ Inspect before use (by competent person)

### Preventing Falls from Roofs

- ✓ Wear a harness and always stay connected
- ✓ Make sure your harness fits
- ✓ Use guardrails or lifelines
- ✓ Inspect all fall protection equipment before use
- ✓ Guard or cover all holes, openings, and skylights ❖

## Preventing Falls on Temporary Stairs

Temporary stairs are common during the construction of buildings. They are also some of the most neglected areas on a job site. Stairs that aren't designed to regulatory specifications or are improperly installed are a danger to everyone that works on or visits the site.

### Temporary Stair Hazards

The biggest danger from temporary stairs is the potential for the stairs to collapse or someone falling off them if they are not designed or installed properly. Other hazards include:

- A stairway that is not properly secured at the top and bottom could cause the stairs to shift and slide.
- If the bottom of the stairway is installed over a floor opening that can't support the weight of people and materials, collapse is almost certain.
- Cracked stairs or stairways missing stringers, steps, and grooves, could diminish the strength of the stairway and cause it to collapse under too much weight or traffic.
- A stairway installed in an unsafe or improper location, such as in an area with heavy equipment traffic, could make being struck by moving equipment all too likely.
- Unprotected sides and edges of stairways are a dangerous fall hazard.

- Stairs that are too narrow can make it difficult for people and materials to move safely.
- Treads and risers of un-uniform width, length and height is a tripping hazard.
- The buildup of ice and snow on the stairs or at the top or bottom of the stairway is a slip and fall hazard.

### Preventing Temporary Stair Hazards

- Plan the layout and location of the stairs so workers and visitors to the site have easy access to the stairs and the location provides easy access to between floors.
- In most cases, stairways must be installed at least 30 degrees- and no more than 50 degrees- from the horizontal.
- Ensure the bottom and top of each stairway is properly secured to the floor.
- Put up warning signs and physical barriers on stairways that need repair or attention to prevent access until repairs can be made.

- Install stair rails and guardrails as required by local, state, and federal codes and regulations, on all open sides and landings.
- Require inspection of all temporary stairs prior to use.
- Remove any slip, trip and fall hazards and dangerous projections such as protruding nails.
- Keep the access to and the stairs themselves, free from tools, equipment and debris to prevent slip and trip hazards.
- Address slippery conditions caused by rain, snow or ice immediately.
- Instruct workers on stairway hazards to be aware of and how to report hazards they see and concerns they have.
- Tell workers not to tamper with or make any changes to temporary stairways.
- Train all workers on the fall hazards in the work area, including temporary stairways, and instruct them on how to minimize these hazards. ❖

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## ABOUT US



# POLICIES AND PRACTICES

## Fall Protection Equipment Inspection Checklist

Fall protection equipment should be inspected by “competent” workers, who can use this checklist to ensure that this equipment is in good condition and safe to use. Adapt the checklist for the fall protection equipment in your workplace, safety laws, and the requirements or recommendations from the equipment’s manufacturer.

**Inspector:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Company:** \_\_\_\_\_ **User:** \_\_\_\_\_

**Serial #:** \_\_\_\_\_ **Model #:** \_\_\_\_\_

**Manufacturer:** \_\_\_\_\_ **Date of Man.:** \_\_\_\_\_

<b>HARNESSES</b>	<b>YES</b>	<b>NO</b>	<b>Comments</b>
Webbing: Frayed? Worn? Rotted?			
D-rings: Worn? Bent? Cracked?			
Buckles: Corroded? Deformed?			
Eyelets: Corroded? Deformed?			
Stitching: Frayed? Worn? Rotted?			
Load indicator: Intact?			
<b>LANYARDS</b>	<b>YES</b>	<b>NO</b>	<b>Comments</b>
Webbing/rope/cable: Frayed? Worn? Rotted?			
Snap hooks: Locking? Corroded?			
Shock absorber: Intact? Unopened?			
Splicing/stitching: Frayed? Worn? Rotted?			
Is the scaffold no higher than 38 meters?			
Does the scaffold have a height-to-base ratio of at least 3:1?			
<b>ANCHORAGE CONNECTORS</b>	<b>YES</b>	<b>NO</b>	<b>Comments</b>
Webbing: Frayed? Worn? Rotted?			
D-rings: Worn? Bent? Cracked?			
Mechanical parts: Corroded? Bent? Cracked?			
Pins/locking devices: Corroded? Bent? Cracked? Missing?			
Load indicator: Intact?			
Function: Slides/tieback?			
<b>RETRACTABLES/PFL/SRL</b>	<b>YES</b>	<b>NO</b>	<b>Comments</b>
Outer case: Corroded? Bent? Cracked?			
Webbing/cable: Frayed? Worn? Burned?			
Snap hooks: Locking? Corroded? Deformed?			
Load indicator: Intact?			
Function: Lockup? Non-locking?			
<b>Inspector's signature:</b> _____			

## SCORECARD

## Recent OSHA Cases &amp; Fines

**Georgia automotive company cited for safety and health violations.** In response to a complaint of unsafe working conditions, OSHA inspected Hitachi Automotive Systems Americas of Monroe, Ga., in August. Inspectors issued safety and health citations to Hitachi for numerous violations, including deficiencies in the company's hearing protection and hazard communication programs, as well as an emergency eye wash station that wasn't installed. OSHA also issued safety and health citations to staffing agency Express Employment, which supplied Hitachi with temporary workers.

**New Jersey firm cited for serious and repeat violations.** OSHA initiated an inspection in August of Transaxle, a transmission recovery and remanufacturing firm in Cinnaminson, New Jersey, in response to an employee complaint in August. The inspection found repeat violations, including lack of proper machine guarding, hearing protection and training for lock-out, tag-out procedures. Transaxle was also cited for numerous serious violations, including open-sided platforms, electrical hazards, and lack of forklift training.

**Ohio printing company receives multiple citations following three separate inspections into safety and health violations.** OSHA initiated a safety inspection of Quad Graphics in September following a worker's amputation injury at the Columbus, Ohio, printing facility. Four days after the reported incident, another worker's

finger was fractured in a printing press. In October, after reviewing the employer's injury and illness logs and finding that several workers had suffered hearing loss, the inspector opened a health inspection to evaluate the employer's hearing conversation program. A second health inspection was opened in November to address possible combustible dust hazards. OSHA issued the company multiple safety and health citations for violations related to standards including machine guarding, electrical, fall protection, noise, personal protective equipment and hazard communication.

**Kentucky cites restaurant for violations of first aid standard.** Kentucky Occupational Safety and Health cited Texas Roadhouse Management Corp for safety and health violations at its restaurant in Somerset. Inspectors determined that the company failed to provide adequate first aid supplies and failed to provide first aid training to workers.

**Washington issues citations to construction company for fall protection and other violations.** The Washington Division of Occupational Safety and Health issued citations to J & I Construction in Puyallup for exposing workers to falls and other hazards. Inspectors found that the company failed to protect workers from unguarded wall openings, provide railings on open-sided stairs, conduct walk-around safety inspections and ensure that workers wore hard hats. For more information, see the Washington DOSH news release. ❖

## WORLD OF SAFETY

## Hypothenar Hammer Syndrome

Hypothenar Hammer Syndrome (HHS) is a disease that can be easily confused with other disorders, such as hand-arm vibration syndrome (an occupational illness) or Raynaud's disease, which is hereditary. HHS can lead to serious injury in the affected fingers—and could even result in their amputation without appropriate diagnosis and treatment.

So, it's important that you understand HHS and its causes and symptoms, and educate workers on this disease so they can get treatment early if they start to see signs of the condition.

To help educate both employers and workers on HHS, the Institut de recherche Robert-Sauvé en santé et en sécurité du travail (IRSST) published an information pamphlet entitled Recognizing Hypothenar Hammer Syndrome.

The disease develops in workers who repeatedly use the palms of their hands to strike, flatten, press or twist objects, which can reduce blood flow circulating into the fingers, especially the middle, ring and little fingers. Even a single episode of trauma could cause the disease. The use of vibrating tools or tools that exert pressure on or repetitively strike the palm can also cause the disease.

The workers most vulnerable to HHS are machinists, construction workers, miners, mechanics, forestry workers and farmers. A number of tools can cause HHS, including electrical or pneumatic vibrating tools, brush cutters/trimmers, milling machines, grinding machines, jackhammers, impact wrenches, pliers and presses.

HHS can cause one or more symptoms, including:

- White or blue, stiff and painful fingers
- Hypersensitivity to cold
- Decrease in muscle strength in the hand

- Impression of a palpable mass in the palm
- Pins and needles or numbness in the fingers.

Any delay in diagnosing HHS in its acute form could cause serious injury to the affected fingers, which could even result in amputation. So, workers must be vigilant and report early symptoms to their doctor immediately to avoid complications.

To avoid developing HHS, workers should:

- Avoid using the palm of their hands as a hammer to strike a tool or an object.
- Avoid using excessive force to grip objects such as impact wrenches, pliers, scissors, presses of every kind, or gearshifts.
- Use work methods to avoid acute or repetitive trauma.
- Switch tasks regularly or rest their hands.
- Use properly maintained tools that are adapted to the task. ❖

## Have a Plan for Fall Rescue

### WHAT'S AT STAKE?

You're in free fall after a misstep sent you over the edge of elevated work, 40-feet off the ground. Thoughts of your kids, spouse, and your dog Jake, rushing through your head. Who will take care of them? How will they cope with your death? Will you feel any pain when you hit the concrete below...or will the impact kill you before the pain? Ugh! That was close! You breathe a heavy sigh of relief as you realize your fall protection equipment just stopped you from hurtling to the ground and you escaped almost certain death. You look around, hoping your co-workers know what to do next, because you are now left hanging in the air hoping and waiting for someone to rescue you.

### WHAT'S THE DANGER?

After a fall is arrested the work of getting the victim down begins. The rescue of any worker who has fallen and is being suspended in his/her safety harness must be done as quickly as possible because:

- The worker may have suffered injuries during the fall and may need medical attention.
- Left suspended in their safety harness for too long can lead to blood pooling in the lower body and can result in suspension trauma. This can happen in as little as 20-30 minutes.
- The suspended worker may panic if he or she is not rescued quickly.
- The event leading to the fall may create additional risks that must be addressed.

### HOW TO PROTECT YOURSELF

A rescue plan helps everyone understand what to do if a fall occurs; and the best time to have a plan for fall rescue is **BEFORE** a fall happens.

A rescue plan should consider who will be doing the rescue, where the rescue

will take place, what kind of equipment is needed, and what the rescue options are for a work area. Obviously, this means that one rescue plan will not fit all situations and it will be necessary to look at each situation individually.

### WHO

Self-rescue is an option in some cases but often rescue begins with on-site personnel such as co-workers or an in-house fire and rescue team. Emergency services are often called while on-site rescue begins. On-site rescuers can provide valuable information to emergency personnel that will save time and get help to the suspended worker faster.

### WHERE

The where is as easy as considering the different places work at heights is performed and specific projects that are happening at any given time. In fact, each area where fall protection is required should have a rescue plan in place.

### WHAT

The what is the type of equipment needed and the rescue options for an area or project. Rescue equipment can vary from using a ladder or an aerial lift, to using a team to cut the victim down and lower him or her to safety. This will depend on the type of fall protection device being used, if the victim is conscious, and where the fall occurred. For example, a self-retracting lifeline (SRL) positioned above the worker will mean they are still close to the fall site, whereas if a vertical line is attached to a horizontal safety line, the victim's position could be quite far away from the original fall point. If the victim is unconscious it may be necessary to use retrieval and rope rescue.

### FINAL WORD

*Don't leave a worker hanging. Have a plan to perform a quick and safe rescue of workers suspended after a fall. ❖*

## TEST YOUR KNOWLEDGE

1. Once the fall protection stops the fall, the worker is no longer in danger.  
 True  False
2. Suspension trauma can happen in as little as 20-30 minutes after a fall and suspension begins.  
 True  False
3. A self-retracting lifeline (SRL) positioned above the worker will mean they are still close to the fall site.  
 True  False
4. One rescue plan will work for all fall and suspension situations.  
 True  False

### What Would You Do?

You hear a co-worker shouting for help and realize he fell and is suspended in his fall protection harness. What would you do?

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Quiz Answers: 1. False, 2. True, 3. True, 4. False



## FOCUS ON

# Fall Protection and Prevention

**A** construction company president received this picture in an email from his customer inquiring about the look of a wall on a new office building. When the company president saw the picture, he forwarded it to the company Safety Director. The employee on the left of the picture is standing on scaffolding erecting a concrete pillar form. The scaffold is almost 20 feet tall, exceeds the 4:1 height to base ratio, and is not restrained. In addition, there are no midrails or ladder access for this worker. This scaffold was not erected or inspected by a competent person. An employee (center of picture) is standing on the 3rd floor of a building with no guard rails in place or other fall protection. Note that his toes are over the edge and he is leaning outside the building. On the right side of the picture is a forklift picking up two people (only one visible in this picture) on a pallet. The forklift is sitting on a berm embankment to gain access to the higher parts of the structure. The operator is the site superintendent. The one visible person on the pallet is not an employee, but the superintendent's 16-year-old son. They were cleaning the wall of excess material.

The worker on the scaffolding could have fallen from the scaffold, which had no safe access and inadequate guard railing. The worker leaning out the 3rd floor window could have fallen over 20 feet to a hard-packed dirt surface. This worker had previously broken his arm, sued the company because of his injury, and won a judgment against the company. The two people on the pallet could have fallen or been thrown from the forklift when it was moving or extending to position the people closer to the wall.

### What Should Be Done Differently

In general, no scaffold shall be erected, moved, altered or dismantled unless under the supervision and direction of a competent person. A scaffold must also be inspected by a competent person before each work shift or more



often if you suspect any damage from wind, overloading or equipment contact. Employees shall have safe access at all working levels. Any construction worker exposed to a fall greater than six feet must have fall protection; a guard rail system, safety net system, or a personal fall arrest system. The workers on the pallet were exposed to a fall, and you should NEVER lift someone up on the forks of a lift truck unless they are in a properly designed personnel basket on a lift that is rated for that purpose. Finally, using under age workers for construction work is a dangerous practice. The U.S. Department of Labor's Wage and Hour Division does not allow young workers to operate most equipment or to be employed in occupations that have been declared hazardous by the Secretary of Labor. ❖

### NEWS YOU CAN USE

#### Colorado Publishes Guide to OHS Programs for the Legal Marijuana Industry

With a booming legal marijuana industry, Colorado recently released [a guide intended to help assist employers in this industry develop and implement OHS programs](#). Depending on their specific job, workers in this industry face many of the health and safety hazards that workers in other industries face, such as exposure to hazardous substances, slips, trips and falls, and ergonomics-related hazards. But there are a few hazards that are unique to or heightened in the marijuana industry.

For example, marijuana production requires increased levels of humidity, which have been found to be as high as 70%. This increased humidity in the presence of organic material promotes the growth of mold, which can impact workers' health and cause respiratory issues.

In addition, workers can be exposed to hazardous ultraviolet (UV) radiation from several sources. Metal halide lights, which are often used in veg rooms, contain an inner arc tube that emits intense UV radiation along with visible light. If the outer bulb is broken, UV levels can be significant enough to cause photokeratitis, a painful eye condition.

Marijuana grow operations may also use UV lamps as germicidal tools. Exposure to UV radiation from these lamps can cause extreme discomfort and serious injury to the eyes and skin. Lastly, workplace violence is a heightened risk in facilities that sell marijuana due to the high amounts of cash and product on site, which make them prime targets for robberies.

## PICTURE THIS

## Not the Brightest Bulb



**L**ook closely and you can see the top of the ladder at the bottom left of this picture. The only thing this ladder was good for was getting this risky soul up onto the ledge he's standing on. If he's not careful he could earn his wings or end up with multiple broken bones, bruises, and a concussion. This balancing act should be stopped immediately and someone should help this worker get safely on his feet before his light is turned off for good.

This light fixture is in a tricky place for safe ladder use and for safely changing the bulb in this light fixture. How did he manage to get the bulb up there with him? Did he carry it while trying to balance on the two ledges? Did he have to bend over while balancing on the ledges, so someone could hand the bulb to him?

This, and other dangerous tasks, should always be discussed and planned beforehand to determine the safest way to get the work done. ❖

## NEWS YOU CAN USE

## Recordkeeping reminder

The 2016 Summary of Work-Related Injuries and Illnesses (Form 300A) must be posted in workplaces from February through April.

## SEVEN STATISTICS

## Falls

1. Liberty Mutual estimates more than \$61 billion per year is spent on disability claims in America with \$15.57 billion, or 25.1 percent, resulting from falls (16.4 percent of falls to same level, 8.7 percent falls to a lower level).
2. Over 60% of all elevated falls are from a height of less than 10 feet and accidents involving slips, trips and falls send 9 million people to the hospital each year. Most slip and fall injuries result in relatively minor soft tissue injuries, such as sprained tendons, ligaments and muscles, minor contusions and abrasions, small gashes, and minor burns. But many result in much more serious injuries such as, head trauma, herniated disks, fractures, amputations, and deep gashes degree burns.
3. In the industrial sector, (manufacturing plants, offices and warehouses) 70% of the fall-related lost time injuries are due to slips/trips on the same level, 30% are from height. The main causes of slips, trips and falls in the workplace are:
  - Uneven floor surfaces
  - Poor lighting
  - Unsuitable floor coverings
  - Poor housekeeping
  - Wet floors
  - Damaged stairs
  - Aisle and path obstructions: cables, cords, wires
4. The opposite is true in construction, where 70% of falls are from a height while 30% are due to slips/trips on the same level. Falls from height are usually much more severe than a fall on the same level. Many falls from height occur where personal protective equipment wouldn't be typically used such as falls through an unguarded opening in the floor or scaffold, a missing guardrail, and falls from ladders (30% of falls from a height).
5. In Canada over 42,000 workers get injured annually due to fall accidents. This number represents about 17% of the "time-loss injuries" that were accepted by workers' compensation boards or commissions across Canada (based on statistics from Association of Workers' Compensation Boards of Canada, 2011).
6. According to the U.S. Department of Labor, slips, trips and falls make up the majority of general industry accidents, which account for:
  - 15 percent of all accidental deaths per year, the second-leading cause behind motor vehicles.
  - About 25 percent of all reported injury claims per fiscal year.
  - More than 95 million lost work days per year - about 65 percent of all work days lost.
7. Citing the U.S. Bureau of Labor Statistics, a study by The Center for Construction Research and Training (CPWR) Data Center points out that falls account for 76 percent of fatalities in the roofing industry, and workers in the roofing industry are three times more likely to experience fatal work-related injuries than other construction workers. The findings suggest that workers employed by small establishments, residential construction workers, Hispanic workers and immigrant workers may face disproportionately high risks of roof fatalities. ❖