



Protect your people,  
your productivity and  
your bottom line.

**What you will find inside:**

- Fall protection basics
- OSHA and ANSI key requirements
- Tether Track™ product information
- Fall hazard assessment
- Tips for creating a fall protection plan

## Your employees' safety hangs in the balance.

The facts are alarming. According to 2009 data compiled from the Bureau of Labor Statistics, 605 workers were killed, and an estimated 212,760 were seriously injured by falls to the same or lower level. Fall injuries constitute a considerable financial burden, as well. For example, Workers' Compensation and medical costs associated with occupational fall incidents have been estimated at approximately \$70 billion annually in the United States.<sup>1</sup> Falls are among the most common causes of serious work-related injuries and deaths.<sup>2</sup>

Worker safety is imperative, and developing and implementing a fall protection program not only prevents injuries, but could save lives as well. In addition, regulatory agencies have increased fines for noncompliance with fall protection standards. **While there are a number of reasons why many companies are not meeting today's requirements for fall protection, the fact remains that employers have a legal and moral obligation to protect their people.**

## Fall protection 101

Complying with today's workplace health and safety requirements is easier said than done. Which rules and standards apply to you? What's recommended and what's required? Before you can even start to develop a Fall Protection Plan you need to determine your company's legal obligations. A good starting point is to visit the Fall Protection section of the OSHA website: [www.osha.gov/SLTC/fallprotection](http://www.osha.gov/SLTC/fallprotection).

### Common causes of workplace falls:

- Limited or no training
- Incorrect equipment
- Incorrectly calculated total fall distances and clearance
- Damaged equipment
- Worker fatigue
- Environmental conditions
- Situational awareness

<sup>1</sup> CDC Reference: NSC (2002) Report on injuries in America 2002. Itasca, IL: National Safety Council.

<sup>2</sup> [www.osha.gov/SLTC/fallprotection](http://www.osha.gov/SLTC/fallprotection)

## Fall protection by the code.

### What OSHA requires.

Under Title 29 of the Code of Federal Regulations (29 CFR), the Occupational Health & Safety Act (OSHA) assures and enforces safe and healthful working conditions for general industry, construction and maritime trades. Employers have the duty of providing their workers with a place of employment free from recognized safety and health hazards. OSHA enforces regulation 1926, Subpart M for construction and regulation 1910, Subparts D and F for general industry, which require fall protection be provided at:

- 4' in general industry
- 5' in shipyards
- 6' in the construction industry
- 8' in longshoring operations
- Any height, when working over dangerous equipment and machinery, regardless of the fall distance.

These regulations are legislation and must be followed under penalty of law. To avoid potential fines and citations, be sure to carefully assess your workplace environment and potential fall hazards.

### What ANSI recommends.

In addition to federal regulations, there are "voluntary" consensus standards regarding fall protection set forth by the American National Standards Institute (ANSI) and Canadian Standards Association (CSA). ANSI and CSA specify product performance and testing criteria for personal fall arrest equipment.

While not enforceable by law, these standards typically should be adhered to, as they are often adopted by OSHA or other regulatory agencies. ANSI Standards can become mandatory by "Incorporation by Reference"; when an OSHA standard cites the ANSI standard for compliance; or when the "General Duty" clause is cited which requires employers to keep the workplace "free from recognized hazards." ANSI issues the nationally recognized fall protection code ANSI Z359.

## Do you need fall protection?

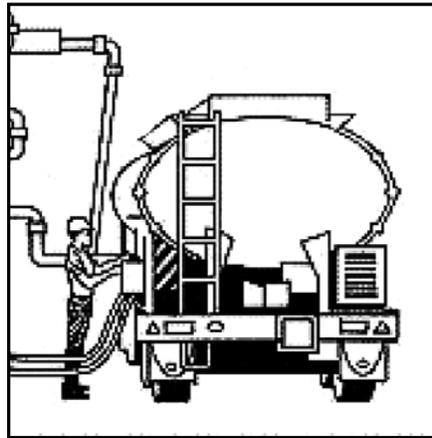
An all-inclusive fall protection program begins with the ability to identify all fall hazards in your workplace. As a general rule, when someone is working from a height greater than four feet (1.2 m), a fall hazard exists and must be addressed in order to prevent work-related injuries and avoid OSHA fines. Once a fall hazard has been identified, you typically have two options:

- 1) **Eliminate the hazard altogether**, or
- 2) **Provide protection against it.**

In some cases, it is possible to eliminate a fall hazard, typically known as “engineering out the hazard,” simply by changing the working environment, processes and procedures. If this is not possible, fall prevention should be the next consideration. Common fall prevention methods include installing guardrails, scaffolds, handrails or barriers.

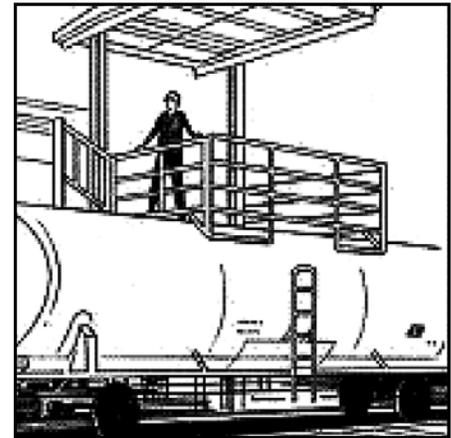
When passive fall protection solutions such as elimination or prevention are not practical, personal fall protection equipment, such as harnesses, lanyards and retractable lifelines can be used. Personal fall protection may consist of a restraint system to keep the worker from reaching an area where a fall hazard exists, or a personal fall arrest system that enables a worker to perform their duties from the height required, while tied off to the system. If a need for fall protection is determined, the next step is to carefully consider the four options illustrated here.

### Change work procedures or redesign your environment.



#### ELIMINATE

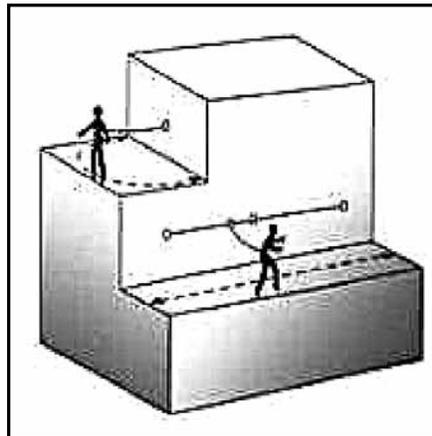
Move work to ground level.



#### PREVENT

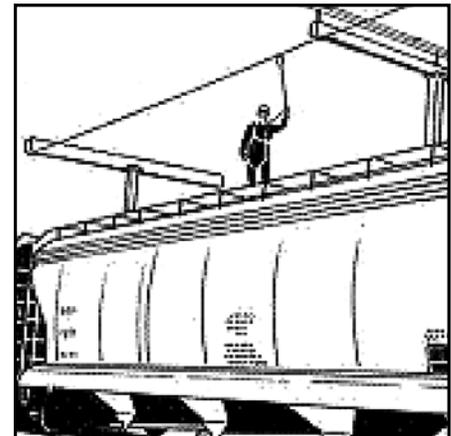
Work in a guarded area, utilizing products such as handrails, safety gates, guardrails and rooftop railings.

### Deploy a fall protection system.



#### RESTRAIN

Restrain worker by fitting them in a harness with a tether attached. A fixed-length lanyard is then attached to the D-ring on the harness, and then to a code-compliant anchorage system.



#### ARREST

Utilize a professionally engineered fall arrest system—ideally one that is custom-designed for your specific work environment. Proper fall arrest includes three key components: anchorage, body harness, and connecting device.

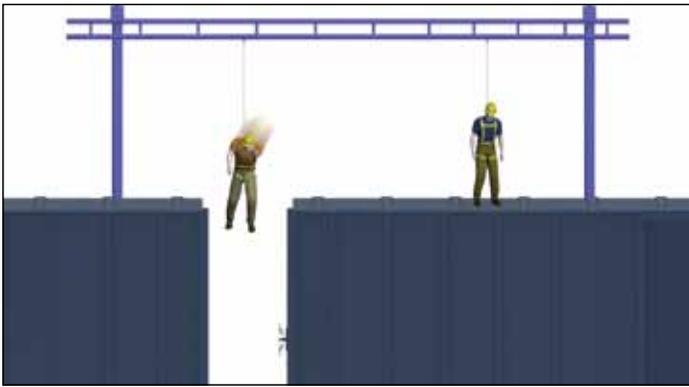


## Components of a fall arrest system.

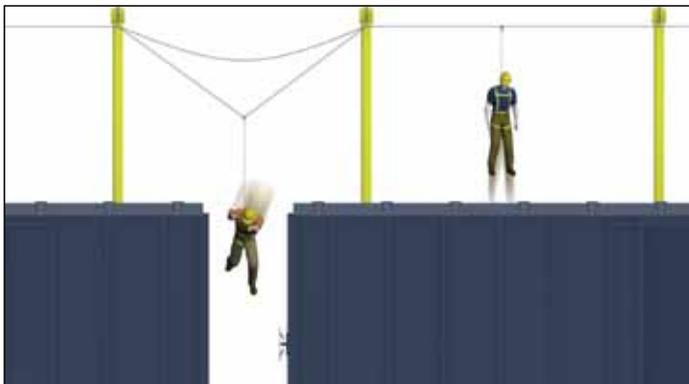
- 1 ANCHORAGE:** A secure point of attachment for lifelines, lanyards or deceleration devices; commonly referred to as a tie-off point. ANSI Z359 further defines anchorage as a fixed structural component such as a beam, girder, column or floor that can support the forces exerted in arresting a fall.
- 2 CONNECTING DEVICE:** A device used to link the body support component of the system to the anchorage connector, such as a shock-absorbing lanyard or self-retracting lanyard (SRL).
- 3 BODY HARNESS:** Provides a connection point on the worker to distribute the forces evenly across the body in the event of a fall. A full body harness is a body support device that distributes fall arrest forces across the shoulders, thighs, and pelvis—and has a center back fall arrest attachment, typically a D-ring, for connection to the fall arrest connecting device.

## The benefits of rigid rail fall arrest systems.

While its name might imply otherwise, rigid rail systems are the most flexible forms of fall arrest. Ideal for environments where there is limited clearance between the working level and lower level or obstruction, these systems provide a shorter free-fall distance and a reduced risk of secondary injury due to impacts during the free fall or sudden deceleration. Rigid rail fall arrest systems are the perfect solution for permanent applications and can easily be customized to fit every situation.



Tether Track™ Rigid Rail Fall Arrest Systems provide shorter free-fall distances, reduced risk of secondary fall injuries such as swinging into obstacles, and no negative impact on a second worker in the event of a fall.



Wire rope systems can create hazardous situations due to the dynamic sag of the wire after a fall.

## Tether Track™ Rigid Rail Fall Arrest Systems, *A Class Above* traditional wire rope.

**LESS FALL CLEARANCE DISTANCE** — Wire rope systems require additional fall clearance due to the initial sag of the wire. The dynamic sag, or the stretch of the rope during a fall, adds to this distance. A Tether Track™ Rigid Rail Fall Arrest System stops the fall sooner by eliminating any sag, stopping the fall in a much shorter distance than wire rope.

**REDUCED RISK OF SWING FALL INJURIES** — Injuries occurring after the fall, such as swinging into obstacles, are minimized with a rigid rail fall arrest system, which stays firm and minimizes the total fall distance. When a worker falls on a wire rope system, the wire's sag will make the trolley slide to the center of the nearest two supports, creating a risk for the worker to collide with nearby obstacles after a fall.

**LONGER DISTANCES BETWEEN SUPPORTS** — A rigid rail fall arrest system allows for longer distances between supports, reducing both material and installation costs.

**SAFER WORK FOR MULTIPLE WORKERS** — When a worker falls on a wire rope system, any slack on the wire is eliminated. The result could be a sudden pull on the rope that could have a jarring effect on other workers on the same system. Rigid rail fall arrest systems provide uninterrupted protection for additional workers on the same system. In the event of one worker's fall, the rigid rail system will not bend or deflect like a wire rope system, allowing additional workers to continue to move freely and safely.

**AFTER A FALL** — The worker can continue use of a rigid rail fall arrest system after a visual inspection. A wire rope system must be replaced and recertified by a qualified engineer.

## Getting your safety on the right track.

Gorbel—a leader in overhead material handling—offers one of the most complete lines of rigid rail fall arrest systems available today. Featuring an enclosed track design, exclusively engineered for easy movement, Tether Track™ Systems provide the highest degree of mobility and safety, while reducing the risk of injury in elevated work environments.

Designed by qualified engineers, Tether Track™ systems are available in multiple configurations, including various track profiles and support center distances, and meet the OSHA 1926 Subpart M Construction Standard, as well as the ANSI Z359 Fall Protection Code.



## The safest solution for virtually every environment.

Engineered for easy movement, all Tether Track™ systems can be designed to accommodate multiple workers, utilizing dual bypassing track that allows them to maneuver around each other without disconnecting. Choose the configuration that best meets the needs of your environment:



CEILING MOUNTED MONORAIL



FREE STANDING MONORAIL

### CEILING MOUNTED MONORAIL SYSTEMS

- Provide mobility along a single axis for applications when workers need to travel in a straight line
- Curved track sections available
- Variety of hanger options available to accommodate various building structures
- Unlimited monorail lengths with up to 50'\* between supports

### FREE STANDING MONORAIL SYSTEMS

- Provide free standing support when building structure is inadequate for ceiling mounted applications
- Available in free standing cantilevered or goal post designs
  - Cantilevered design allows for fewer support columns and accommodates headroom constraints
  - Goal post design can be bolted directly into concrete floor, reducing the need for costly foundations
- Standard support centers from 7' to 35', and up to 50'\* custom designed

\*Dual trussed track only



BRIDGE

### BRIDGE SYSTEMS

- Consist of two runways and a traveling bridge for maximum coverage within a rectangular work area
- Lightweight aluminum bridge follows the worker, remaining directly overhead
- Available in ceiling mounted or free standing designs
- Plain or trussed track runways based on support center requirement
- Multiple bridges can accommodate several workers when properly zoned
- Unlimited runway lengths, with up to 30' bridge spans



SWING ARM

### SWING ARM SYSTEMS

- Provide circular or semicircular fall protection with a compact footprint
- Versatile and adaptable; swing arm can be moved out of the way when not in use
- Wall mounted, column mounted or free standing designs
- Available in wall cantilever or wall bracket configurations, depending on headroom constraints
- Infinitely variable friction brake or motorized rotation available
- Standard arm lengths from 8' to 30', custom spans available upon request



FOLD AWAY

### FOLD AWAY SYSTEMS

- Deploy as needed, then fold away when done
- Perfect for work cells requiring access to overhead cranes, when floor space is limited or when infrequent fall protection is necessary
- Wall mounted, column mounted or free standing designs
- Available in wall cantilever or wall bracket configurations, depending on headroom constraints
- Infinitely variable friction brake or motorized rotation available
- Unlimited lengths with up to 50' between supports



SINGLE POLE

### SINGLE POLE SYSTEMS

- Space-saving design allows for installation in areas where there is minimal floor space or limited room for foundations
- Utilizes only one free standing support with one single foundation
- Standard track lengths up to 53'



# Fall Hazard Assessment Checklist

Use this checklist to determine if you require fall protection.

**Work is performed:**  indoors  outdoors

**Identification of fall hazards** (check boxes):

Working surfaces at elevations of:

\_\_\_ 4'

\_\_\_ 6'

\_\_\_ 5'

\_\_\_ 8' Plus

Unprotected sides or edges

Leading edges

Holes

Ramp, runways and other walkways

Excavations

Dangerous equipment

Wall openings

Other

**Type of surface** \_\_\_\_\_

**Frequency of task** \_\_\_\_\_

**Task requires:**  vertical movement  horizontal movement

**Number of workers exposed to a fall hazard** \_\_\_\_\_

**Approximate distance from the surface to lower levels** \_\_\_\_\_

**Can the fall hazard be eliminated or prevented by:**

Process change?

yes  no

Working in a guarded area, utilizing guardrails or gates?

yes  no

Using a fall restraint system?

yes  no

**If you answered “no” to all of these questions, an engineered fall arrest system is required. If so, please answer the following two questions:**

Are there overhead obstructions?

yes  no

Are there floor obstructions?

yes  no

**What are the necessary lengths (how many supports?)** \_\_\_\_\_

**What is the necessary height?** \_\_\_\_\_

## Yes, I do need a fall arrest system. Now what?

Once you have determined a need for fall arrest system, the first thing you should do is contact Gorbel—a recognized leader in overhead materials handling and fall arrest systems. Our engineers and fall protection trainers have the expertise to match your needs. Available in multiple configurations, including various track profiles and support center distances, fall protection systems can be easily customized to fit every budget and application.

The next step is to add fall protection to your company's overall health and safety plan. A written site-specific program should be developed, including detailed work procedures to protect your employees. The fall protection portion of your plan should state what fall protection measures are to be used, how they are to be used, a rescue plan, as well as the individual responsible for overall supervision and training.

**For more information, visit [www.gorbel.com](http://www.gorbel.com) or call 800-821-0086**