FALLS AWARENESS WEEK MAY 6-10, 2019

Fall Prevention Safety Tool Kit

A Guide for Employers

Ontario

Workplace Safety North™

FALLS AWARENESS WEEK MAY 6-10, 2019

Welcome to Ontario's second annual Falls Awareness Week, May 6 to 10, 2019.

Falls are a leading cause of workplace injuries and deaths in Ontario. Seventy-three workers died due to falls between 2011 and 2017.

At the Ministry of Labour, we are working to prevent these tragedies by promoting an open dialogue about workplace falls and creating a positive change in workplace culture.

During Falls Awareness Week, I encourage you to pause work for 15 to 30 minutes to conduct a safety talk on falls and identify specific falls hazards at your workplace. Workers should be given an opportunity to ask questions and have their concerns addressed. Sharing your knowledge and experience can be invaluable to your workplace. This safety talk kit will help you structure these discussions.

In addition to the kit, a number of other resources are available to support you. They include content from our health and safety partners and information from Ontario.ca/StopFalls.

Your participation is key to the success of Falls Awareness Week. Educating your workplace can result in fewer injuries. A safe workplace also leads to improved productivity and fewer claims to the Workplace Safety and Insurance Board. This saves you and others a great deal of money in the long run.

Everyone – employers, workers, government and others – has an important role to play in keeping workers safe on the job. Together, we can help eliminate needless suffering and make Ontario one of the best places in the world to live, work and prosper.

Ron Kelusky
Chief Prevention Officer
Ministry of Labour

Ontario | Infrastructure Health & Safety Association™ | Public Services Health & Safety Association™ | Workplace Safety North™ | Workplace Safety & Prevention Services®

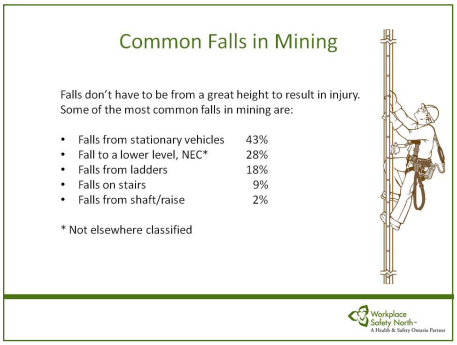
Fall Protection

Leader's Notes - Fall Protection

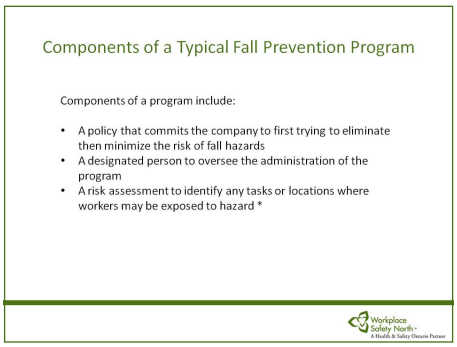
Falls from elevation are one of the leading causes of accidental death in the Ontario mining industry. Everyone, even employees with years of experience working close to fall hazards, can become complacent about wearing fall protection equipment. This safety meeting talk is an excellent opportunity to reinforce the importance of wearing this equipment.

Note: *These notes are intended to guide the trainer through a crew safety meeting on fall protection. Review the slides and notes ahead of time. Bring a copy of your company's fall protection program to discuss with the group. Gather any procedures, statistics, incident or accident reports available from your operation. Referring to these will make the subject more relevant to the audience. If possible, have fall protection equipment on hand to demonstrate with your crew.*

Regulation 845, Mines and Mining Plants outlines the legislative requirements for fall protection. Section 14 addresses fall arrest. Section 60 addresses fall arrest while working in bins. Section 84(2) focuses on fall arrest with movement of bulk materials. Section 94 addresses fall protection while scaling. Section 190 focuses on fall arrest on scaffolds and stages. Section 46(3) addresses when guardrails are necessary. Regulation 213, Construction Projects, Section 26.1 to 26.9, provides more recent legislation on fall protection.

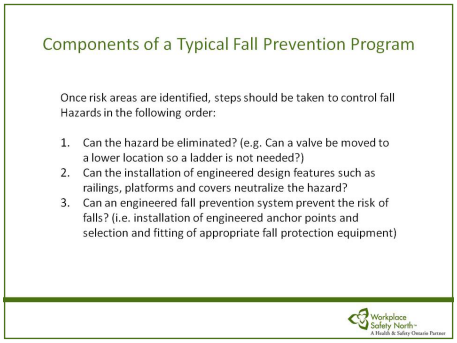


It is important to stress that falls from elevation don't have to be at great heights to cause injury. Falls from stationary vehicles make up 43% of fall from elevation accidents.

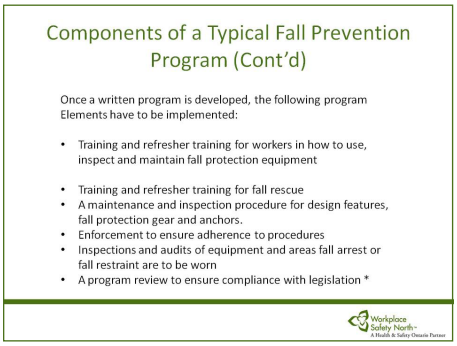


Every company should have a fall protection program. This starts with a policy. A policy statement states the company's commitment to reducing fall hazards in the workplace. A designated person must be in charge to oversee a fall protection program and put in place controls to manage fall hazards identified during the risk assessment.

Note: *Discuss your company's policy with your crew.*

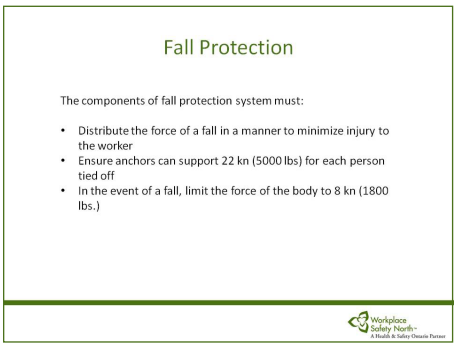


With your crew, review areas in your workplace where fall hazards exist. If possible, it is best to eliminate fall hazards from the workplace. If it is not possible to remove the hazard, the next best thing is to try and engineer the problem out through guard rails, platforms or covers. If this is not possible, clearly mark the fall hazard area and ensure that anyone working in the area is wearing the proper fall prevention equipment.

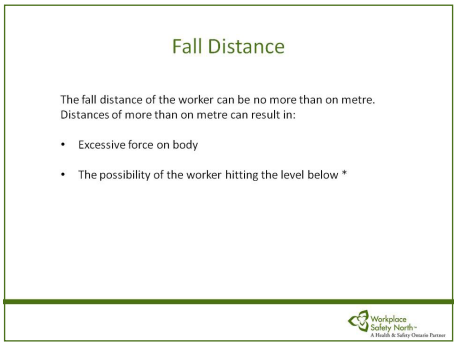


In order for a fall protection program to be effective, training and refresher courses must teach workers on how to use, inspect and maintain their gear. Workers must also be trained in how to safely and efficiently rescue someone who has fall.

According to Section 14 of Regulation 845 a fall arrest system must be made up of a suitable combination of the following components: Full-body harness, lanyard, shock absorbers, anchor, and a rope grabbing device or lifeline. Shock absorbers help minimize the forces on the body that results from a fall.

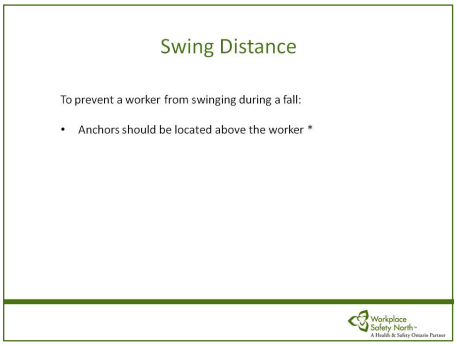


Anchors and fall plrotection equipment must be engineered to support 5000 lbs (22 kilonewton) for each person tied off and limit the force on the body to 1800 lbs (8 kn). Ask yourself 'is it strong enough to hold a pick-up truck?'

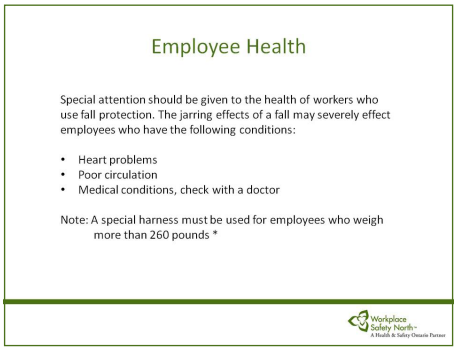


The farther a person falls, the greater the speed and therefore the greater the force on the body when stopped by a fall arrest system. If the force is too great, this can result in internal injuries.

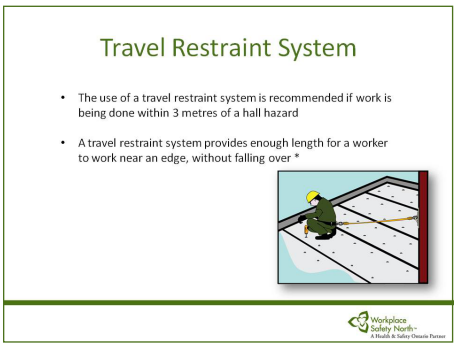
The lanyard must be adjusted to prevent a worker from falling more than one metre. (Regualtion 854, Section 14(4)(a)



When a worker falls they will come to rest underneath the anchor they are fastened to. If the anchor is not directly above them, the worker will swing in the motion of a pendulum until he comes to rest under the anchor. If the swing distance is too great the worker may hit walls, causing futher injury.



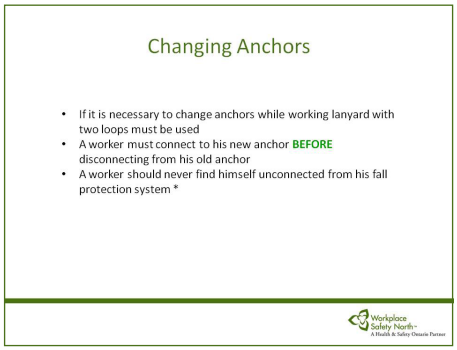
While fall protection equipment is designed to limit force on the body and work as comfortably as possible, workers will experience jarring and be suspended in mid-air as the result of a fall. If workers have medidcal conditions they should check with their doctor. Full-body harnesses are designed for weights up to 260 lbs. If a worker weights more than this they will require a special harness.



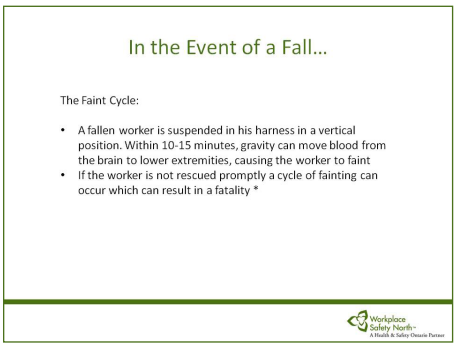
The restraint system is set up to prevent the worker from accidentally reaching the edge and falling off. Travel restraint systems are recommended when work is taking place within 3 metres of an edge, but the worker has to work right at the edge, a fall arrest system is necessary.

If you have to work near the edge of a fall hazard, a fall arrest system must be used. Two common types of fall arrest systems are: A full-body harness connected by a lanyard (with shock absorber) to an anchoring point; or a full-body harness connected to a self-retracting lifeline (with a shock absorber). It is very important that workers are comfortable and competent with the system they are to use. It is important to work in pairs due to the recommended 15 minute time frame to rescue someone from a fall. Workers must be properly trained in all aspects of fall protection: from gear inspection to rescue, and be aware of the location of rescue equipment and the time-constraints associated with suspenion trauma.

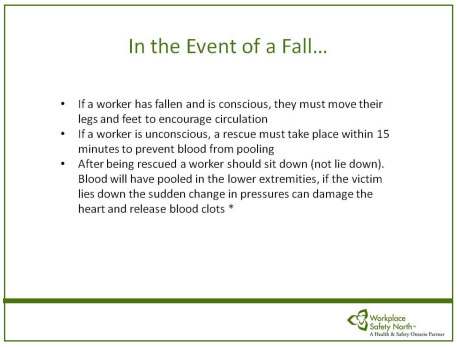
Develop good habits when working in a fall protection zone. Make sure the work area is free of tripping hazards. Never step backwards and always look down before shifting footing, and you will never have to engage your fall arrest system.



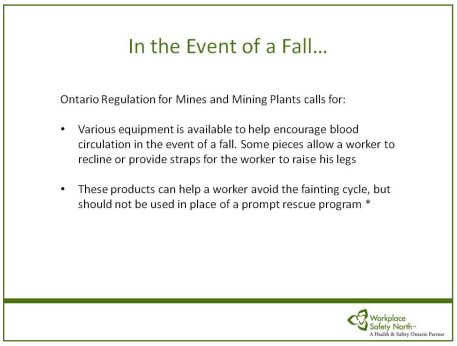
A fall protection system only works if the worker is fastened into an anchor. When workers change anchors they leave themselves vulnerable to a fail. If the task they are performing requires changing anchors, the worker must have a lanyard with twin loops. This allows a worker to connect to the new anchor before detaching from the old anchor.



Make verbal contact with a fallen worker to ensure they are okay and let them know you are starting the rescue process. Once a person has fallen, a rescue must begin immediately. If the rescue takes too long, the victim will begin a faint cycle as a result of blood being pulled by gravity from teh upper extermities and brain to the lower extremities. After each period of fainting, the victim's level of consciousness becomes more and more diminished - this can eventually result in a fatality.



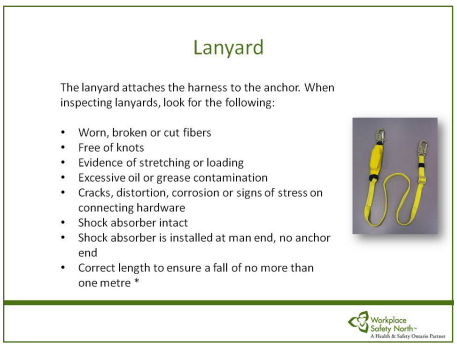
Encourage the worker to move their arms and legs to encourage circulation. Once the worker is rescued, make sure they sit down (not lie down). Sitting down allows blood located in the lower extremities to return to the upper extremities at a slower pace. A sudden change in pressure (from lying down) can result in increased blood pressure, release of blood clots, and rapid change in heart rate that causes damage to the heart. There are special suspension straps available to help a fallen worker rest their legs while awaiting rescue.



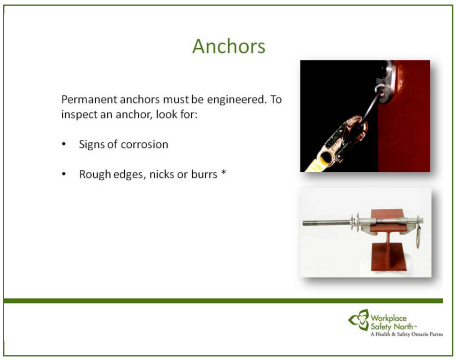
All fall protection equipment is sold with manufacturer's instructions for care and maintenance. It is essential your program takes these recommendations into account.

Note: Discuss the manufacturer's instructions for your company's fall arrest equipment with your crew.

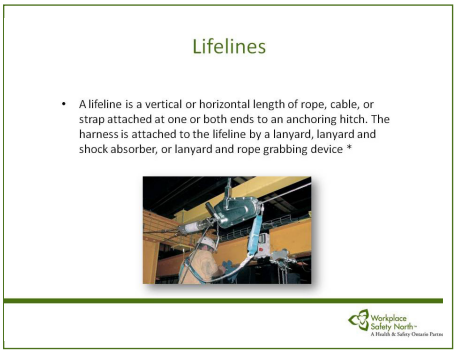
Inspect each piece of equipment carefully before use.



Inspect each piece of equipment carefully before use. Do not tie knots in lanywards, hook two lanyards together or tie a lanyard back on itself. This comprimises the integrity of the lanyard.



Inspect each piece of equipment carefully before use. Anchors used in the underground environment require special attention, as they are placed directly into rock. Section 26.7 of Regulation 213, Construction Projects outlines design requirements for anchors.



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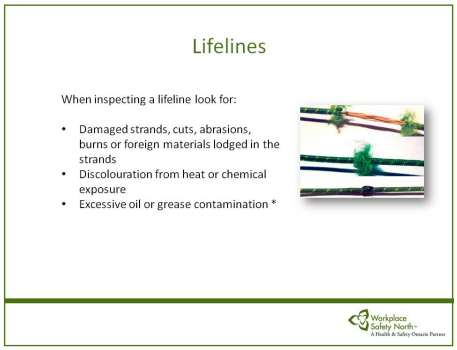

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The following resources can be used to supplement this safety meeting talk:

- Company fall protection program
- Manufacturer's instructions and inspection checklist
- Safety videos available from manufacturer
- Construction regulations 213, Section 26(1) - 26(9)
- Guideline for Section 14, Regulation 854

The information contained in this material is provided as a guide only. WSN recognizes that individual companies must develop health and safety policies and programs which apply to their workplaces and comply with appropriate legislation. This material does not constitute legal advice. While the information provided, including references to legislation and established practice, is current at the time of printing, it may become out-of-date or incomplete with the passage of time.

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Fall Protection

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Fall Protection

Ontario Regulation for Mines and Mining Plants calls for:

- All walkways and working platforms located 1.5 metres above ground to have guardrails

- A fall arrest system to be used if there is a risk that a worker may fall more than three metres *

Common Falls in Mining

Falls don't have to be from a great height to result in injury. Some of the most common falls in mining are:

- Falls from stationary vehicles 43%
- Fall to a lower level, NEC* 28%
- Falls from ladders 18%
- Falls on stairs 9%
- Falls from shaft/raise 2%

* Not elsewhere classified

Components of a Typical Fall Prevention Program

Components of a program include:

- A policy that commits the company to first trying to eliminate then minimize the risk of fall hazards
- A designated person to oversee the administration of the program
- A risk assessment to identify any tasks or locations where workers may be exposed to hazard *

Components of a Typical Fall Prevention Program

Once risk areas are identified, steps should be taken to control fall Hazards in the following order:

1. Can the hazard be eliminated? (e.g. Can a valve be moved to a lower location so a ladder is not needed?)
2. Can the installation of engineered design features such as railings, platforms and covers neutralize the hazard?
3. Can an engineered fall prevention system prevent the risk of falls? (i.e. installation of engineered anchor points and selection and fitting of appropriate fall protection equipment)

Components of a Typical Fall Prevention Program (Cont'd)

Once a written program is developed, the following program Elements have to be implemented:

- Training and refresher training for workers in how to use, inspect and maintain fall protection equipment

- Training and refresher training for fall rescue
- A maintenance and inspection procedure for design features, fall protection gear and anchors.
- Enforcement to ensure adherence to procedures
- Inspections and audits of equipment and areas fall arrest or fall restraint are to be worn
- A program review to ensure compliance with legislation *

Fall Protection

A fall arrest system is made up of a suitable combination of the Following components:

- Full body harness
- Lanyard
- Anchor
- Shock absorber
- Lifeline *

Fall Protection

The components of fall protection system must:

- Distribute the force of a fall in a manner to minimize injury to the worker
- Ensure anchors can support 22 kn (5000 lbs) for each person tied off
- In the event of a fall, limit the force of the body to 8 kn (1800 lbs.)

Fall Distance

The fall distance of the worker can be no more than on metre. Distances of more than on metre can result in:

- Excessive force on body
- The possibility of the worker hitting the level below *

Swing Distance

To prevent a worker from swinging during a fall:

- Anchors should be located above the worker *

Employee Health

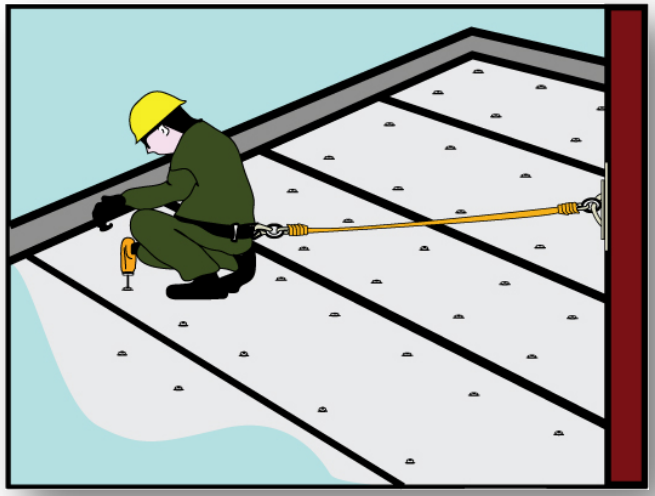
Special attention should be given to the health of workers who use fall protection. The jarring effects of a fall may severely effect employees who have the following conditions:

- Heart problems
- Poor circulation
- Medical conditions, check with a doctor

Note: A special harness must be used for employees who weigh more than 260 pounds *

Travel Restraint System

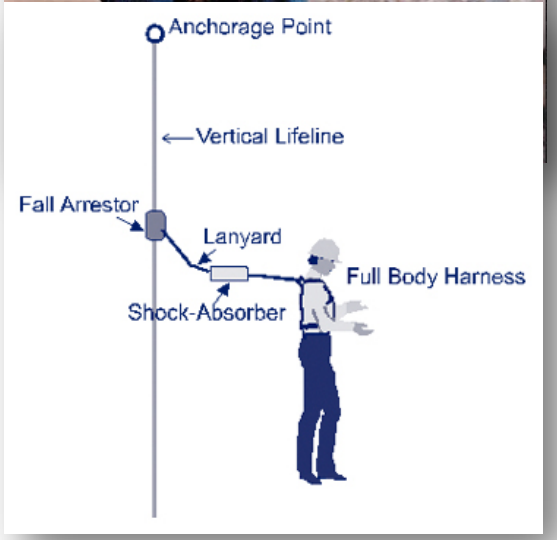
- The use of a travel restraint system is recommended if work is being done within 3 metres of a hall hazard
- A travel restraint system provides enough length for a worker to work near an edge, without falling over *



Fall Arrest System

A fall arrest system should not be used by workers unless they:

- Have received proper training in set-up, use and inspections
- Are paired up in a buddy system
- Are trained in fall rescue
- Are aware of the location rescue equipment *



When Working in a Fall Protection Zone…

To work safely on raised platforms, protect yourself by:

- Wearing fall arrest protection
- Having a clean work area, free of tripping hazards
- Never stepping backwards
- Looking down first before shifting footing *

Changing Anchors

- If it is necessary to change anchors while working lanyard with two loops must be used
- A worker must connect to his new anchor **BEFORE** disconnecting from his old anchor
- A worker should never find himself unconnected from his fall protection system *

In the Event of a Fall…

The Faint Cycle:

- A fallen worker is suspended in his harness in a vertical position. Within 10-15 minutes, gravity can move blood from the brain to lower extremities, causing the worker to faint
- If the worker is not rescued promptly a cycle of fainting can occur which can result in a fatality *

In the Event of a Fall…

- If a worker has fallen and is conscious, they must move their legs and feet to encourage circulation
- If a worker is unconscious, a rescue must take place within 15 minutes to prevent blood from pooling
- After being rescued a worker should sit down (not lie down). Blood will have pooled in the lower extremities, if the victim lies down the sudden change in pressures can damage the heart and release blood clots *

In the Event of a Fall…

Ontario Regulation for Mines and Mining Plants calls for:

- Various equipment is available to help encourage blood circulation in the event of a fall. Some pieces allow a worker to recline or provide straps for the worker to raise his legs

- These products can help a worker avoid the fainting cycle, but should not be used in place of a prompt rescue program *

Equipment Inspection

- It is critical that equipment is thoroughly checked before use to ensure it can withstand a fall
- Be sure to follow all of the manufacturer's instructions for care and inspection of equipment *

Full Body Harness

When inspecting a harness, look for:

- Cuts, frayed edges or broken stitches in webbing
- Discolouration, melted fibers or brittleness due to heat or chemcials
- Excessive oil or grease contamination
- Cracks, distortions, sharp or rough edges on the harness' buckles
- Rusting on grommets *

Lanyard

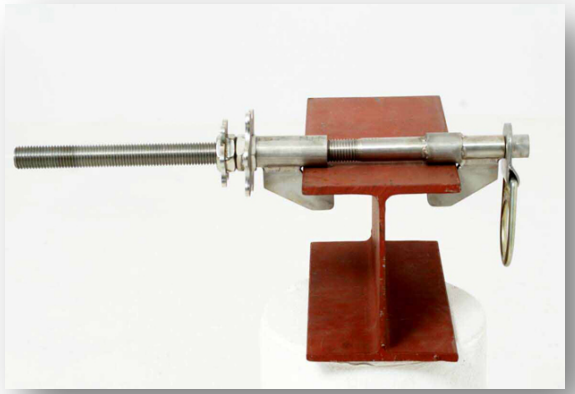
The lanyard attaches the harness to the anchor. When inspecting lanyards, look for the following:

- Worn, broken or cut fibers
- Free of knots
- Evidence of stretching or loading
- Excessive oil or grease contamination
- Cracks, distortion, corrosion or signs of stress on connecting hardware
- Shock absorber intact
- Shock absorber is installed at man end, no anchor end
- Correct length to ensure a fall of no more than one metre *

Anchors

Permanent anchors must be engineered. To inspect an anchor, look for:

- Signs of corrosion
- Rough edges, nicks or burrs *



Lifelines

- A lifeline is a vertical or horizontal length of rope, cable, or strap attached at one or both ends to an anchoring hitch. The harness is attached to the lifeline by a lanyard, lanyard and shock absorber, or lanyard and rope grabbing device *

Lifelines

When inspecting a lifeline look for:

- Damaged strands, cuts, abrasions, burns or foreign materials lodged in the strands
- Discolouration from heat or chemical exposure
- Excessive oil or grease contamination *

Self-Retracting Lifeline

To inspect a self-retracting lifeline test for:

- Spring action
- Locking action

Inspect for:

- Corrosion
- Visible cracks
- Broken wires
- Deformations *

Sample: Inspection Checklist

Slips, Trips and Falls Specific

Aisle ways and passageways

Are aisles marked?
Are they clear and unobstructed?
Are they wide enough for all normal movements?

Conveyors

Are gears, shafts, and pulleys guarded on pinch points?
Are drop guards installed to catch falling material?
Are emergency stop controls adequately located and operational?
Are fire control and/or suppression provided and operational?
Are proper warning signs posted?
Is the fire suppression system operational?
Are fire extinguishers provided?

Exits & escape ways

Are there sufficient exits / escape ways for prompt escape?
Are they open (not locked or blocked)?
Are, all exit routes clearly marked?
Are all exits/escape ways marked and illuminated?
Are they wide enough?
Is there more than one exit from each work area?
Are approaches unobstructed?
Are exit/escape ways free of combustible and flammable material?
Are they clear of snow, ice, or other slipping hazards?
Do all exits open outward onto a level surface?

Floors

Are they clean and orderly?
Is drainage maintained?
Are they free of slip, trip or fall hazards?
Are there any protrusions, nails, etc.?
Are openings covered or barricaded?
Are load limits posted on upper floors?

Ladders

Are the safety feet in proper condition?
Are they free of paint, grease and oil?
Is the ladder properly positioned and tied off at the top?
Are doors near the ladder blocked, locked or guarded?
Is the ladder supported if placed against an opening?
Is there a 3 foot extension above a roof or platform being accessed?
Are all defective ladders tagged cut?
Are ladders near electrical areas non-metallic?
Are both rails of the ladder supported?
Do fixed ladders have landing platforms at proper intervals?

Lighting

Are travel routes and work areas adequately illuminated?
Are lighting fixtures clean?
Is the level of light sufficient for the detail of work performed?
Is there emergency lighting of all exit routes not naturally lighted?
Are there any burnt out bulbs that need to be replaced?

Platforms & scaffolding

Are they wide enough?
Is the flooring non-skid?
Is there safe access to moveable platforms?
Are access gates self-closing and locking?
Is the surface equipped with standard guardrails?
Are scaffolds sound and rigid?
Is the surface clear of tools or materials?

Roadways

Are surfaces in good repair?
Is there sufficient width and vertical clearance?
Are standard signs and markers in place?
Are rail sidings in good repair?
Are necessary traffic lights in operation?
Are safety bays provided for pedestrians? (u/g roadways)

Stacking and Storage

Is housekeeping in proper order?
Are aisle ways and access paths clear and unobstructed?
Is storage height limited?
Are all stacks stable and secure against sliding or collapsing?
Is proper drainage provided in storage areas?
Are storage areas free of fire hazards?
Are rack and platform load limits posted and observed?

Stairs

Are stairs provided where there is regular traffic between levels?
Are they wide enough?
Are they angled properly?
Are the steps uniform in height and tread depth?
Are risers open if the tread depth is shallow?
Do outdoor stairs have grating type treads?
Are treads and nosings slip-resistant?
Are long flights broken by platforms?
Are railings provided on open' sides or on one side if stairs are closed?
Is there proper vertical clearance?

Waste Disposal

Are there an adequate number of metal refuse containers?
Are separate containers provided for flammable refuse and waste?
Are there safe disposal facilities for wastes?
Are anti-static devices fitted as necessary?
Are chemical spill absorbents available in work areas?
Are proper WHMIS labels in place?