



# Health and Safety Resources

## Caution to Users

Many of the resources in this archive were originally prepared by WSN's predecessor organizations for use by industry clients. While much of the information and many of the forms included with them are still valuable, users should recognize that examples, contact information and data such as legislative references may be out of date. The resources are offered as free tools for companies to use in an effort to continuously improve their health and safety systems. But users of these resources also need to ensure that they are aware of the most recent legislation, equipment and processes, as well as current practices.

Fall Protection  
Take Ten For Safety



Workplace  
Safety North™  
A Health & Safety Ontario Partner

# 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 one metre.  
Distances of more than one 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

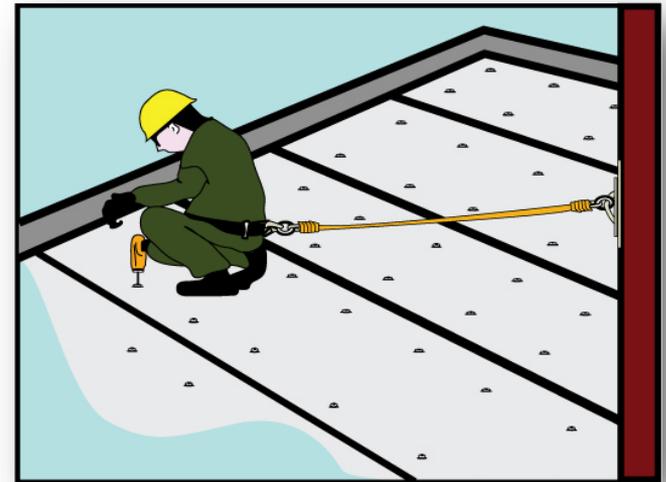
Special attention should be given to the health of workers who use fall protection. The jarring effects of a fall may severely effect employees who have the following conditions:

- 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

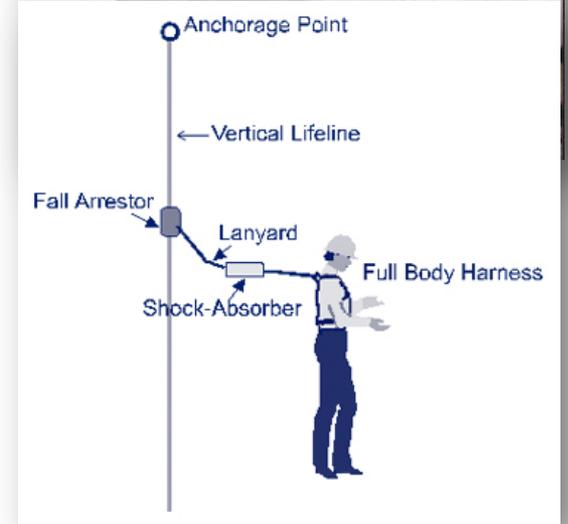
- The use of a travel restraint system is recommended if work is being done within 3 metres of a fall hazard
- A travel restraint system provides enough length for a worker to work near an edge, without falling over \*



# 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 chemicals
- 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:

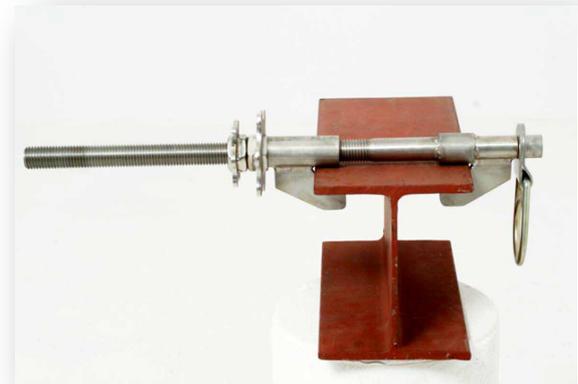
- Worn, broken or cut fibers
- Free of knots
- Evidence of stretching or loading
- Excessive oil or grease contamination
- Cracks, distortion, corrosion or signs of stress on connecting hardware
- Shock absorber intact
- Shock absorber is installed at man end, no anchor end
- Correct length to ensure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

