



2012  
Health and  
Safety Policy



**MITCHELL FIRE PROTECTION SYSTEMS**

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## **Mitchell Fire Protection Safety Policy Statement**

**Mitchell Fire Protection Systems** acknowledges its duty and responsibility as a contractor to provide and maintain a safe and healthy workplace for all employees and sub-contractors.

**Mitchell Fire Protection Systems** recognizes that an effective Health and Safety Program is mandatory to protect the safety and health of employees.

The goal of our Health and Safety Policy is to eliminate workplace injuries and health hazards through the following objectives:

- Increased safety awareness throughout **Mitchell Fire Protection Systems**
- Compliance with all legislated safety requirements
- Development, implementation and evaluation of policies and procedures for a safe working environment
- Effective training programs to help maintain a higher personal standard of safety awareness
- Effective investigation of critical workplace injuries and the appropriate action to rectify any recurrence

The directors at **Mitchell Fire Protection Systems** are committed to health and safety at the workplace and the well being of all its employees.

Every employee is expected to work in a responsible manner and be accountable for their health and safety and for those working under their supervision.

Sincerely,



Clint Mitchell  
President



Lee G. Mitchell  
Vice President

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## INTRODUCTION

This manual outlines the overall Health and Safety Program for **Mitchell Fire Protection Systems**, and was intended with the aid of the Occupational Health and Safety Act and Regulations for Construction Projects and the CSAO Health and Safety Manual, to provide employees with guidance in preventing accidents/incidents and injuries in the workplace.

All employees are required to play an active role in order to maintain a safe and healthy work environment.

## AIM OF OUR SAFETY PROGRAM

**Mitchell Fire Protection Systems** will follow these objectives to eliminate workplace injuries and health hazards:

- Increased safety awareness throughout the company
- Compliance with all legislated safety requirements
- Effective response to employee concerns
- Provision of necessary personal protective equipment
- Effective investigation of critical workplace injuries and the appropriate action to rectify any recurrence



## **WORKER RIGHTS**

All of our employees have the right to:

- Refuse unsafe work
- Know about the hazards in the workplace

## **RIGHT TO REFUSE**

Under Section 43.3 of the OHSA all construction workers have the right to refuse unsafe work. If you believe any particular task is unsafe for any reason follow the following procedure,

- Upon becoming aware or believing that a particular task is unsafe, immediately report to your supervisor the conditions that you believe to be unsafe
- The supervisor, with the worker shall review the task and the workers concerns
- If the concerns are resolved to the workers satisfaction, work resumes
- If not, the supervisor shall immediately summon the worker health and safety representative (certified if one), and familiarize the H & S rep with the refusal
- If the H & S rep, supervisor and worker resolve the issues, to the workers satisfaction, work resumes
- If not the supervisor shall immediately contact a MOL inspector for assistance

- The worker can be assigned another task in the interim
- The task shall not be assigned to another worker prior to the health and safety representative becoming aware of a work refusal

## POLICY STATEMENTS

### Core Safety Rules

- The lockout/tag out procedure shall be followed without exception.
- No person shall enter a confined space before it is tested and checked by a competent person and until an Entry Permit has been issued.
- No person who is rendered incapable of performing his/her regular work duties because of alcohol or any other drug shall of enter nor remain on the project.
- No person shall remove, tamper with nor misuse medical, rescue or fire- fighting equipment.
- No person shall remove nor make ineffective any guard or protective device required, without providing adequate temporary protection.
- No person shall engage in any prank, contest, feat of strength, unnecessary running or rough and boisterous conduct.
- No person shall use compressed air to neither blow dust from clothing nor point the nozzle towards others.
- No person shall load material handling equipment in excess of its maximum rated load.
- No person shall operate a lifting device in such a way that any part of the load passes over a worker.

- No person shall wear loose clothing, jewelry, or rings, when working on rotating equipment or near any source of entanglement.
- No person shall work near a rotating shaft, gear, reel, roll, belt or other source of entanglement without confining long hair ties inside their shirts or headgear
- No person shall be exposed to a hazard of falling more than 10 feet without wearing a safety belt or harness and lifeline.
- No person shall smoke anywhere on company property except in designated smoking areas.
- No person shall be exposed to the hazards of bodily injury without wearing the required personal protective equipment (PPE) and the PPE shall be maintained in good condition.
- Workers must obtain and wear, at all times on the job, a CSA certified Class B safety hard hat.
- At all times on the job, workers must wear CSA certified Grade 1 footwear with heavy duty toe and sole protection. Such footwear bears a green triangular patch stamped with the registered trademark of the Canadian Standards Association on the outside/a rectangular green label on the inside.
- Safety glasses, goggle or face shields shall be worn when concrete breaking, metal chipping, grinding and for other operations where eye protection is required.

## Harassment Policy

**Mitchell Fire Protection Systems** is committed to providing a work environment in which all individuals are treated with respect and dignity. Work- place harassment will not be tolerated from any person in the workplace. Everyone in the workplace must be dedicated to preventing workplace harassment.

Workplace harassment means engaging in a course of vexatious comments or conduct against a worker in a workplace a comment or conduct that is known or ought reasonably to be known to be unwelcome.

Workplace harassment can involve unwelcome words or actions that are known or should be known to be offensive, embarrassing, humiliating or demeaning for a worker or group of workers. It can also include behavior that intimidates isolates or even discriminates against the targeted individual.

This policy is not intended to limit or constrain the reasonable exercise of management functions in the workplace. Workers are encouraged to report any incidents of workplace harassment. Management will investigate and deal with all concerns, complaints or incidents of workplace harassment in a fair and timely manner while respecting 'workers' privacy as much as possible.

## Substance Abuse Policy

Health and Safety is a serious concern of **Mitchell Fire Protection Systems**. It is the policy of the Company to prevent substance use or abuse from having an adverse effect on our employees. The Company maintains that the work environment is safer and more productive without the presence of alcohol, illegal or inappropriate drugs in the body or on company property or a job site. Furthermore, employees have a right to work with persons free from the effects of alcohol and drugs. Employees who abuse alcohol or use drugs are a danger to themselves, co-workers, the public and the Company's assets.

It is therefore the policy of the Company that the use, sale, purchase, transfer, possession or presence in ones' system of any controlled substance (except medically prescribed drugs, provided that they do not impair ones' ability to carry out their role) by any person while on Company premises or a job site, engaged in Company business or while operating Company equipment is strictly prohibited.

## **Violence in the Workplace**

**Mitchell Fire Protection Systems** recognizes that there is a potential for violent acts to occur in the workplace. We also acknowledge that physical and emotional harm can often arise out of such acts of violence. No forms of violence will be tolerated in the workplace, either on the part of employees, managers, contractors, customers or visitors. Every effort will be made by the Company to identify possible sources of violence and to implement procedures which eliminate or minimize the risks created by such situations.

**Mitchell Fire Protection Systems** also acknowledges that violence in the workplace is a serious occupational health and safety hazard that can cause physical and emotional harm. Acts of violence or threats of violence in the workplace is unacceptable. The Company is committed to the prevention of workplace violence and to responding appropriately if workplace violence does occur. All managers, employees and contractors are responsible for creating and maintaining a safe work environment free from violence and intimidation.

## ENFORCEMENT

The supervisor shall take steps to discipline employees and sub-contractors who are in contravention with this policy.

The graduated steps a supervisor shall take are to include the following;

- Verbal Warning
- Written Warning
- Dismissal

**Mitchell Fire Protection Systems** reserves the right to terminate any employee for a single safety violation with or without prior notice; and in no event shall any employee be allowed more than the guidelines provided in this section.

Any worker who has been dismissed from **Mitchell Fire Protection Systems** jobsite may return only after the following conditions have been met:

Minimum of 30 days banned from any **Mitchell Fire Protection Systems** jobsite and the worker must attend safety training.



## **REPORTING PROCEDURES EMPLOYEE/EMPLOYER REQUIREMENTS FOR REPORTING AND TREATMENT**

### **Accident Reporting**

An accident in the workplace sets in motion all the plans that have been made in order make the best of a bad situation. The immediate concern is for the welfare of the injured worker.

Employer's first responsibilities are to:

- Ensure that the injured worker is receiving the appropriate medical attention
- Secure the accident site so that it poses no further threat to employees
- Cordon off the accident site so that if an investigation is warranted, the site remains undisturbed

In Ontario, there are overlapping accident reporting requirements between the Ontario's Occupational Health and Safety Act: (OHSA) and the Workers' Compensation Act (WCA). The severity of the accident will largely determine which forms the employer will have to complete to meet the requirements of the WCA and the OHSA.

## **Near Miss Reporting**

All accidents and incidents (near misses) no matter how small must be reported to your supervisor. The reporting of all accidents and near misses are critical to determine the accident trends and for identification and control of future accidents. Any injury that is not reported on the day of the injury in accordance with this policy shall not be accepted as happening on the jobsite.

If the problem is not resolved to the satisfaction of the employee who laid the original complaint; the problem will be reported to the Ministry of Labour. This report may be submitted by the employee, or the employer.

## **Dangerous Circumstances**

Under section 44 of the act dangerous circumstances are defined as follows;

- When a provision of the act or regulations is being contravened
- When the contravention poses a danger or a hazard to a worker
- When the danger or hazard is such that any delay controlling it may seriously endanger a worker

**ALL Dangerous circumstances shall be reported to the site supervisor immediately. Also notify any workers in the area of the danger. The site supervisor is required to correct the dangerous circumstance immediately.**

### **Suspected Substance Abuse Case Reporting**

- It is the responsibility of the Supervisor to contact the Health and Safety Coordinator and Project Manager if an employee or subcontractors' employee is suspected of abusing a substance.
- The worker is to be dismissed or discharged from the work place immediately.
- In the event that a Supervisor is suspected of abusing a substance, an employee shall contact the President or Vice President of **Mitchell Fire Protection Systems**.
- The dismissal shall be a period of 3 days, without pay.
- Employees have the right to appeal such dismissal within the 3 day period, a joint meeting will be held with the employee and the Partners of Mitchell Fire Protection. At such a time it will be determined whether further action shall be taken.
- Employees will experience a supportive environment upon return to work.
- As a condition of employment, the employee must be willing to participate in a mandatory testing program for a period of 1 year if there is reasonable cause to suspect continued alcohol or drug use.

## **REPORTING PROCEDURES REQUIRED BY THE WSIB AND THE MOL**

For the purposes of injury reporting, there are four categories:

- First Aid Cases
- Health Care Cases
- Accidental Injuries or Industrial Diseases (Lost time)
- Fatalities

### **First Aid Cases**

- Injured worker receives minor treatment in the workplace
- A record of accidents is required to be kept in a log book by the employer
- A log that contains a report of all minor accidents is a very useful tool for pointing out unsafe work practices and machinery
- Injuries that seem minor at first may prove to be more serious later on and require compensation

## **Health Care Cases**

- Treatment by a health care practitioner
- A report to WSIB is required within three (3) days of the employer becoming aware of an injury requiring medical aid.
- If the employer has reason to doubt the occurrence, the employer should attach a letter to the report requesting an investigation and explaining the reason for the request.
- For a health care injury, OHSA requires that a record of the accident be kept by the employer for at least one year or longer, if necessary, so as to ensure that the two most recent incidents are on record.

## **Lost Time Cases**

In the event of a workplace injury or disease that will keep the employee from returning to work after the day of the accident WSIB and the Ministry of Labour will be notified.

## **Fatalities and Critical Injuries**

- In the event of a death at the workplace, regardless of its cause, the employer is required to complete a WSIB Form 7A
- The WSIB will send this form to the employer after being informed of the fatality using the Form 7
- Employer must immediately notify by telephone or other direct means: the inspector of the Ministry of Labour and the health and safety representatives
- Must be followed by a written report within 48 hours

## PROJECT START-UP PROCEDURE

It is very important to initiate good planning and proper site organization during the start up of any project. A preliminary safety meeting is essential to:

- Introduce the health and safety manual, the Occupational Health and Safety Act and the CSAO's health and safety manual (the safety standards for **Mitchell Fire Protection Systems** jobsites)
- First Aid and Medical Facilities
- Security requirements
- Sanitation requirements
- Orientation for workers and subcontractors
- Unique safety problems and hazards

All workers including shall be trained in:

- WHIMIS
- Fall Protection

Training records will be kept including training dates and names of participants. Training records will be made available upon request.

## **SAFETY PROCEDURES**

### **Fall Protection**

The best protection is to prevent falls from happening. Fall prevention uses physical means to keep workers away from situations where they might fall.

Some form of fall protection must be used whenever workers are exposed to the hazard of falling:

- More than 3 metres ( 10 feet)
- More than 1.2 metres (4 feet) if the work area is used as a path for a wheelbarrow or similar equipment
- Into operating machinery
- Into water or another liquid
- Into a hazardous substance or object through an opening in a work surface

The best means of fall protection is a guardrail system complying with the current construction regulation (O.Reg.213.91).

Where it isn't possible to install guardrails, workers must be protected by at least one of the following fall protection methods:

- Fall prevention
- Fall arrest



Fall prevention includes:

- Proper use of worksite access such as ladders and scaffolds
- Protective covers over floor and roof openings
- Learning barriers and bump lines
- Guardrail systems
- Travel restraint

Any retractable lifeline involved in a fall arrest must be removed from service until the manufacturer or a qualified testing company has certified it for reuse.

### Lifeline Hazards

- **Ultraviolet light** - Exposure to the sun may damage or weaken synthetic lifelines. Ensure that material being considered for lifelines is UV- resistant.
- **Temperature** - Extreme heat can weaken or damage some life- lines while extreme cold can make others brittle. Ensure that material being considered for lifelines can stand up to the most extreme conditions expected.
- **Friction and abrasion** - Normal movement may wear, abrade, or otherwise damage lifelines in contact with sharp or rough surfaces. Protection such as wood softeners or rubber mats can be used at contact points to prevent wear and tear.
- **Sparks and Flame** - Hot work such as welding or

flame cutting can burn, melt, cut, or otherwise damage a lifeline. Ensure that material being considered for lifelines is flame -resistant or provide appropriate protection where sparks or flame may be encountered.

- **Chemicals** - Chemical exposure can burn or degrade a lifeline very quickly. Ensure that material being considered for lifelines will resist any chemicals encountered on the job.
- **Storage** - Always store lifelines separately. Never store them where they may come in contact with hazards such as sharp objects, chemicals, or gasoline.

## Anchor Systems

There are three basic types of anchor systems for fall protection:

1. **Designed fixed support** - load-rated anchors specifically designed and permanently installed for fall protection purposes as an integral part of the building or structure.
2. **Temporary fixed support** - anchor systems designed to be connected to the structure using specific installation instructions.
3. **Existing structural** features or equipment not intended as anchor points but verified by a professional engineer or competent person as having adequate capacity to serve as anchor points.

## Ladders

Falls from ladders are one of the most common and serious falls in construction. Falls occur for a variety of reasons such as:

- Ladders are not held, tied off or secured before being used
- Workers can lose their footing due to slippery substances on rungs or at the ladder base such as snow, ice, mud

- Three point contact (one hand and two feet or two hands and one foot) when climbing up and down or working from ladder
- Workers fail to keep their centre of gravity between the side rails and reach or lean out too far.
- Workers don't face the ladder when climbing up or down
- Ladders are set up on poor footing
- Ladders are set up at angles too steep or too low, causing them to tip or slide
- Ladder is damaged or defective
- High winds topple ladders or knock workers off
- Areas at the base and top of ladders are not clear of obstructions

When any ladder must be set up next to an unprotected edge where a fall of 3 meters (10 feet) or more could occur, workers using the ladder must be protected by a fall-arrest systems.

## Portable Ladders

These are the most commonly used ladders in construction. They may be manufactured from wood, aluminum, or fiberglass, or be constructed on site.

- Designed, constructed, and maintained to support all loads reasonably
- Free from loose, damaged or defective rungs
- Rungs spaced at 300 millimetres (1 foot) on centres
- Side rails at least 300 millimetres (1 foot) apart
- Set up a safe distance from live electrical conductors and equipment
- Set up on firm, level footing or, if ground is soft or muddy, on a mud sill
- Erected one metre out for every three or four metres up

Portable Ladders used for regular access between levels must:

- Extend at least 900 millimetres (3 feet) above upper landing
- Have a clear space of at least 150 millimetres (6 inches) behind each rung
- Have a landing surface at top and bottom adequate and free of obstructions, debris and other hazards
- Be firmly secured at top and bottom to prevent movement

Where a portable ladder must bear against a vertical surface and there's no means to tie the tip off, a ladder stabilizer can provide additional stability. Stabilizers are manufactured to suit various applications.

### **Inspection Checklist**

- Side rails not twisted, cracked, dented, or otherwise damaged
- Rungs straight and free of cracks, significant wearing, and distortion
- Feet on side rails intact and operating as originally manufactured
- Wooden ladders free of paint or other opaque coatings that may conceal defects such as cracks
- No slipshod repairs or makeshift replacements
- Damaged or defective ladders tagged and immediately removed from Service
- Repairs done only by manufacturer or competent worker

## Step Ladders

There are two basic requirements:

1. Make sure legs are fully open and spreaders pushed down and locked.
2. Never stand on the top step or the pail shelf.

Other safeguards include the following:

- Make sure that hinges between the two halves of the ladder and connection points on the spreaders are in good condition and operate as originally manufactured with no lateral play in the joints
- Check that spreaders are not deformed, damaged or otherwise defective
- Always set up the ladder on a secure, firm, flat surface. Never set up a ladder on piled material or debris
- Use the ladder only in the fully open position, not as a straight ladder propped or leaning against a structure
- Before setting up a stepladder, check for overhead electrical hazards
- Keep your centre of gravity between the side rails of the ladder to avoid tipping
- Always use a stepladder that is the correct height for the job so that the work can be done without having to stand on the upper steps

- Never use stepladders for temporary bracing or shoring – they are not designed for that kind of loading

## **Powered Elevating Work Platforms**

These requirements must be met for fall protection for elevated work platforms (PEWPs):

- The PEWP must be equipped with guardrails
- The PEWP must not be moved with aboard unless each worker wears a full body harness tied off to the platform

All tie-off points on the work plate form should be identified. Most PEWPs have attachment points built in and are indicated in the manufacturer's manual.

When working at heights exceeding 3 metres (10 feet) it is recommended to tie off to anchor points available overhead where possible.

Before the platform is lowered or moved the workers must unhook from the overhead points and the tie off to the platform.



Whenever possible, lower the work platform before moving. This keeps the centre of gravity as close to the wheels as possible, thereby reducing the risk of tipping.

- Always operate PEWPs on a firm level surface
- Before using the equipment, look for overhead power lines and electrical hazards
- Also inspect work area for hazards such as grade changes, curbs or drop offs

Ensure that covers over openings are either strong enough to support the weight of the PEWP or clearly marked so they can be avoided.

### **Confined Space Entry**

Regulation 851, Section 67 to 71 under the Occupational Health and Safety Act defines a confined space as a space in which, because of its construction, location, contents or work activity therein, the accumulation of a hazardous gas, vapor, dust or fume or the creation of an oxygen-deficient atmosphere may occur.

This procedure is designed to familiarize supervisors and employees with the hazards and work practices associated with work in a confined space and their responsibilities for health and safety.

## Purpose

The purpose of this procedure is to:

- Protect employees from the potential hazards associated with cantoned space entry.
- Ensure that company employees are trained to undertake work within a confined space.
- Ensure that all work in a confined space is in compliance with the Occupational Health and Safety Act.
- Ensure a rescue procedure is in place in the event it is required.

## Application

- Confined spaces in which company employees may have to enter are, but not limited to, are the following areas: crawl spaces, valve chambers man holes etc.

## Training

- The Company shall be responsible for providing adequate training for those employees who have occasion to enter and work in a confined space.
- All personnel who may have occasion to enter a confined space must attend training programs and re-training pro-grams as required by the company or the client.
- A record will be kept on file of all trained employees.

## Procedures

### Pre-entry

1. Ensure that the following equipment is available:
  - Portable gas detector
  - Emergency life support apparatus (ELSA)
  - Portable air ventilation blower with air duct hose
  - Full body harness
  - Life line
  - Ladder if required
  - Protective clothing as required – safety glasses. Hard hat etc
2. Ensure the air in the confined space is safe. This is accomplished by drawing a sample from the confined space with gas detector.
3. If air test has given an unsafe result, purge the space for 20 minutes, and then repeat the test. Continue until air in the space is safe.
4. Only when the air in the confined space is tested safe and the confined space entry permit is completed, can employees enter

## Entry

1. Confined space work is to be performed by a minimum of 2 employees, one who will monitor all activities from outside the confined space.
2. Full body harness and life line shall be worn for the duration of the entry.
3. The person entering the confined space shall carry the gas detector and ensure that it is functioning for the duration of the entry.
4. The person entering the confined space shall ensure the ELSA is at the site where the work is being performed.
5. Upon reaching the work area, the gas detector is to be mounted in a location within the worker's reach and must be at head level while work is being performed. Perform all work tasks in a safe manner.
6. Should the detector indicate an alarm condition:
  - Put on the ELSA immediately
  - Retreat from the confined space with the gas detector
  - Do not Re-enter without purging and re-testing

**NOTE:** In the event of an alarm condition and the space cannot be purged, contact the Project Superintendent/Supervisor and **DO NOT ENTER.**

## Rescue

- Under no circumstances is any person to enter a confined space to effect a rescue until additional help and sufficient equipment is available.
- Activate emergency response. Call 911
- If possible, retrieve worker and remove from confined space via body harness and life lines.
- When a worker is removed and is not breathing: apply artificial resuscitation until help arrives or worker is revived.

## Potential Hazards

- Lack of natural ventilation
- Oxygen deficient atmosphere
- Flammable/explosive or toxic atmosphere
- Unexpected release of hazardous energy
- Limited entry and exit
- Physical barriers or limitation to movement used en or slippery conditions
- Not using appropriate lockout procedures

Refer to Section 221 thru Section 354 in Ontario Regulation 213.91 for complete revisions to confined space.

## Scaffolds

### Erecting and Dismantling Frame Scaffolds

The erection, alteration, and dismantling of scaffolds must be carried out under the supervision of a competent person.

### Inspection

Before use, inspect scaffold materials for:

- damage to frames, braces, and other structural components
- damage to hooks on manufactured platforms
- splits, knots, and dry rot in planks
- du-lamination of laminated veneer planks
- enough components for the job

Structural components bent, damaged or severely rusted should not be used. Defective planks should be removed from the site so they cannot be used for platform material.

Before erecting a scaffold, check the location for:

- ground conditions
- overhead wires
- obstructions
- variations in surface elevation
- tie-in locations and methods

## Support Surfaces

- Scaffolds must be erected on surfaces which can support all loads to be applied.
- Floors are usually adequate to support scaffold loads of workers, tools and light material. Older wooden floors should be examined to ensure that they will support the anticipated loads. Shoring below the floor and directly under the scaffold legs may be necessary, or sills which span the floor support structure may be required.
- To support scaffolds, backfilled soils must be well compacted and leveled. Mud and soft soil should be replaced with compacted gravel or crushed stone.
- Where mudsills must be placed on sloping ground, the area should be leveled wherever possible, by excavating rather than backfilling. It may be necessary to use half- frames to accommodate grade changes.
- Mudsills should be 2" X 10" planks (full size) and continuous under at least two consecutive supports. Scaffold feet should rest centrally on the mudsill and the sill should, where possible, project at least 2 feet beyond the scaffold foot at ends or where individual sills butt together. Mudsills may be placed along the length or across the width of frames.
- Blocking or packing with shims under scaffold feet or mudsills is bad practice.

## Assembly

- Install all pants, fittings, and accessories in accordance with manufacturers' instructions. Always use base plates. They allow for minor adjustments to keep the scaffold plumb and level. Nail base plates to mudsills.
- Bracing in the vertical plane is a must on both sides of every frame.
- Bracing in the horizontal plane should be provided at the joint of every third tier of frames.
- Horizontal bracing should coincide with the point at which the scaffold is tied to the building or structure being worked on.
- Horizontal bracing on the first tier helps to square up the scaffold before base plates are nailed to mudsills.
- Wheels or castors should be securely attached to the scaffold and equipped with brakes.
- Always install guardrails. When the scaffold reaches the desired level, put up a guardrail. This applies to all scaffolds regardless of height. If manufactured guardrails are not available, use 2" X 4" or tube-and-clamp guardrails.



## Platforms

- All parts and fittings should be secure before platform components are put in place.
- The rated load-carrying capacity of platform panels should be obtained from the supplier and marked on the panel if not there already.
- Laminated veneer lumber is used increasingly as platform material. Rated working loads should be identified. Inspect veneer lumber for peeling, blistering, and rot.
- Planks must be at least 48 mm x 248 mm (1 7/8" x 9 3/4") and must meet or exceed the requirements for number 1 grade spruce-pine-fir (SPF). Select structural grades of SPF or Douglas fir are strongly recommended. Inspect planks regularly and discard if defective.
- Planks should be cleated on at least one end to prevent movement. The Platform should be fully decked in to prevent sideways movement. Maximum loads for planks should take into consideration a safety factor of at least 3 to 1.

**NOTE:** Where a scaffold exceeds 15 metres in height, or where a scaffold constructed of a tube and clamp system exceeds 10 metres in height, the scaffold shall be designed by a professional engineer. The drawings for the scaffold shall be present on the jobsite, and shall be signed and sealed by the professional engineer.

### Rolling Scaffolds

- Rolling scaffold should have brakes on all wheels or castors. Brakes should be applied once the scaffold is in position. Secure wheels or castors to the frame so they won't drop off crossing a hole or depression.
- Rolling scaffolds should always
  1. Have guardrails
  2. Be securely pinned together
  3. Have horizontal bracing
- Rolling scaffolds over one frame high should not be moved with anyone on the platform. If movement is necessary with workers aboard, they must wear full body harnesses tied off to a fixed, independent support. The travel area must be firm and level.

## Scaffold Use

- Ladder rails used for access and egress must project 1 metre (3 feet) above the scaffold platform. Keep areas around top and bottom of ladders clear.
- Use 3-point contact to climb ladders. This means two hands and one foot, or two feet and one hand on the ladder at all times. Always face the ladder and keep your centre of gravity between the rails.

## General Scaffold Requirements

In all cases, scaffolds shall have, or be equipped with the following:

1. Properly constructed and installed guardrails mid-rails and toe boards.
2. A proper means of access and egress.
3. Properly installed horizontal and vertical bracing.
4. Deck planking of the proper dimensions and cleated. Double planking is required for the placement of materials such as sprinkler pipe and fittings, such planking shall extend beyond the frames on each side of the area used for the placement of these materials.
5. Where required, proper tie-ins that secure the scaffold structure to the building or facility being constructed.
6. A program of daily inspection of the scaffold structure to ensure that the structure is safe for use.

## **FALL PREVENTION**

### **General**

Where workers cannot be protected from falls by handrail or travel restraint, they must be protected by at least one of the following methods:

- Fall-restricting system
- Safety net
- Fall-arrest system

In the event of a fall, these systems must keep a worker from hitting the ground, the next level below, or any other objects below.

Requirements for design, installation, inspection and use of each system are defined in the construction regulation.

### **Personal Protective Equipment (PPE)**

Senior management and/or supervisors shall:

- Identify the need for specific items of personal protective clothing, equipment or devices within their respective areas of responsibility
- Review the appropriateness or durability of existing items
- Evaluate new or proposed items

## Fall-Arrest System

A fall-arrest system must:

- Include a CSA-approved full body harness
- Include a lanyard equipped with a shock absorber unless the shock absorber could cause a falling worker to hit the ground or an object or level below the work
- Be attached to a lifeline or by the lanyard to an adequate fixed support
- Prevent a falling worker from hitting the ground or any object or level below the work
- Not subject a falling worker to a peak fall-arrest force greater than 8 kilonewtons.

The construction regulation (O.Reg213.91) requires that:

- All fall protection equipment must be inspected for damage wear and obvious defects by a competent worker if not a supervisor before each use.
- Any worker required to use fall protection must be trained in its safe use and proper maintenance
- Any defective component should be replaced by one that meets or exceeds the manufacturer's minimum performance standards for that particular system

The regulation also requires that any fall-arrest system involved in a fall be removed from service until the manufacturer certifies all components safe for reuse.

For any worker receiving instruction in fall protection, the manufacturer's instructions for each piece of equipment should be carefully reviewed, with particular attention to warnings and limitations.

### **Fall-Arrest Components**

The Canadian Standards Association provides minimum standards for most components of personal fall protection equipment:

- CAN/CSA-Z259.1-M99-Safety Belts and Lanyards
- CAN/CSA-Z259.2.1-M98-Fall-arrest Devices and Vertical Lifelines
- CAN/CSA-A259.2.2-M98-Self-Retracting Devices for Personal Fall-Arrest Systems
- CAN/CSA-Z259.2.3-M98-Descent Control Devices
- CAN/CSA-Z259.10-M90-Full Body Harness
- CAN/CSA-Z259.111-M92-Shock Absorbers for Personal Fall-arrest Systems

For any component not covered by these standards, confirm with manufacturer that the component is suitable for the particular system being considered.

The minimum strength of fall-arrest components depends on whether or not the system uses a shock absorber.

- In systems without shock absorbers, all components, including life line and lifeline anchorage, must be able to support a static load of at least 8 kilonewtons (1800pounds) without exceeding the allowable unit stress of the materials used for each component.
- In systems with shock absorbers, all components, including lifeline and lifeline anchorage, must be able to support a static load of 6 kilonewtons (1350 pounds) without exceeding the allowable unit stress of the materials used for each component.

It is highly recommended that a safety factor of at least two be applied to the stated minimum load capacity. In practical terms, anchorage should be strong enough to support the weight of a small car (about 3600 pounds).

## **Lifelines**

There are 3 basic types of lifelines:

1. Vertical
2. Horizontal
3. Retractable

All lifelines must be inspected daily to ensure that they are free of signs of damage such as cuts, burns, frayed strands, discoloration and brittleness from heat of chemical exposure.

1) Vertical Lifelines

Vertical lifelines must comply with the current edition of the CSA standard and follow the minimum requirements:

- Only one person at a time may use a vertical lifeline
- A vertical lifeline must reach the ground or a level above ground where the worker can safely exit.
- A vertical lifeline must have a positive stop to prevent the rope grab from running off the end of the lifeline.
- A vertical lifeline **MUST** be kept free from cuts and knots (except knots used to connect it to a support). Knots can reduce the strength of the lifeline by 40%

2) Retractable Lifelines

Retractable lifelines consist of a lifeline spooled on a retracting device attached to adequate anchorage. Retractable lifelines must comply with CAN/CSA-Z259.2.2-M98



In general, retractable lifelines:

- Are usually designed to be anchored above the worker
- Employ a locking mechanism that lets line unwind off the drum under the slight tension caused by a user's normal movements
- Automatically retract when tension is removed, thereby preventing slack in the line.
- Lock up when a quick movement, such as that caused by a fall
- Are designed to minimize fall distance and the forces exerted on a worker's body by fall arrest

Temporary fixed support can be used as anchorage if it meets the following conditions:

- it can support at least 8 kilonewtons (1800 pounds) without exceeding the allowable unit stress for each material used;
- when used with a fall-arrest system incorporating a shock absorber, it can support at least 6 kilonewtons (1350 pounds) without exceeding the allowable unit stress for each material used; or

- When used with a travel-restraint system, it can support at least 2 kilonewtons (450 pounds) without exceeding the allowable unit stress for each material used.

In all cases, a **safety factor of at least two** should be applied when determining the minimum load that an anchor point must support.

As a general rule with fall-arrest systems, choose an anchor capable of supporting the weight of a small car (about 3600 pounds).

When existing structural features or equipment are used as anchor points, avoid corners or edges that could cut, chafe, or abrade fall protection components.

Where necessary, use softeners such as wood blocking to protect connecting devices, lifelines, or lanyards from damage.

Never anchor to:

- roof vents or stink pipes
- roof hatches
- small pipes and ducts
- metal chimneys
- TV antennas
- stair or balcony railings

### Full Body Harness:

- Chest strap should be adjusted so that it's snug and located near the middle of the chest. In a headfirst fall a properly adjusted chest strap will prevent the worker from coming out of the harness.
- Leg straps should be adjusted so the user's fist can fit snugly between strap and leg.
- Harness straps should be adjusted to put the D-ring between the shoulder blades. A properly positioned D-ring will keep a worker upright after fall arrest.

### Inspect harness for:

- burns, cuts, or signs of chemical damage
- loose or broken stitching
- frayed web material
- D-ring and keeper pads free from distortion and signs of undue wear or damage
- grommets and buckles free of damage, distortion, or sharp edges

### Lanyards:

- Use manufactured lanyards only. They can be made of wire rope, synthetic fibre rope, or synthetic webbing.
- Lanyards are manufactured to specific lengths. Never try to shorten a lanyard by tying knots in it. Knots can seriously reduce its rated strength.

- Never store lanyards around chemicals, sharp objects, or in wet places. Never leave them exposed for long periods to direct sunlight.

#### Inspect Lanyards for:

- Burns, cuts, or signs of chemical damage
- Loose or broken stitching
- Frayed web material

#### Shock Absorbers:

- Shock absorbers absorb some of the force generated by fall arrest. Shock absorbers can be purchased as separate equipment or built into lanyards.
- One end of the shock absorber must be connected to the D-ring on the full body harness.
- In most cases the shock-absorbing component is enclosed in a snug-fitting jacket to protect it from the user's day-to-day activities. In a fall, the jacket tears open as the shock absorber deploys.
- Check the cover jacket for stress or tearing (many shock absorbers have a tag on the jacket that tears if the unit is exposed to a shock load—make sure this tag is intact).
- Ensure that a shock absorber built into a lanyard has a constant cross-section or diameter.

## Connecting Devices

**Locking Snap Hook** – has a spring-loaded keeper across the opening of the hook that cannot be opened unless the locking mechanism is depressed.

**Karabiner (D-Clip)** – designed not to open under twist loads. To open the gate or keeper requires two separate actions: (1) twisting the locking mechanism and (2) pulling the locking mechanism back. When released, the spring loaded locking mechanism flicks back into the locked position.

**Rope Grab** – used to connect lanyard to lifeline. These devices can be moved up and down the lifeline when a steady force is applied but will lock when a sharp tug or pull is applied. They will remain locked on the lifeline until the applied force is released. Each rope grab is designed and manufactured for use with a specific diameter and type of lifeline.

**Rope Grab and Lifeline Must be Compatible.** Specifications are usually listed on the housing. The rope grab must also be attached to the lifeline in the correct direction—not upside down. On most rope grabs an arrow indicates the direction in which to orient the device. In addition, each rope grab is designed for use with a specific length of lanyard, normally two or three feet maximum.

Check all connecting devices for:

- damage, cracking, dents, bends, or signs of deformation connecting rings centred—not bent to one side or otherwise deformed
- rust
- moving parts working smoothly
- signs of wear or metal fatigue

## **FALL-ARREST PLANNING**

### **General**

Before deciding on a fall-arrest system, assess the hazards a worker may be exposed to in case of a fall.

Before the fall is arrested, will the worker "bottom out," that is, hit ground, material, equipment, or a lower level of the structure? Will the pendulum effect cause the worker to swing from side to side, possibly striking equipment, material, or structure? In the event of fall arrest, how will the suspended worker be rescued? Planning must take into account these and other concerns.

Total Fall Distance is the distance required to fully arrest a fall. It consists of:

- Free Fall Distance, which should be kept to 1.5 metres (5 feet) or less, plus
- Fall Stopping Distance, which includes stretch in the lanyard (minimal) and lifeline, slack in the harness (maximum 30 cm or 1 foot due to allowable adjustments for user's comfort), and deployment of the shock absorber (maximum 1.1 metres—or 42 inches).

Free Fall Distance is measured from the D-ring of a worker standing on the work surface down to the point where either the lanyard or the shock absorber begins to arrest the fall. It is strongly recommended that this distance be kept as short as possible. To minimize free fall, workers should tie off to an anchor overhead and use as short a lanyard as the work will allow.

Where a worker is connected to a vertical lifeline by a rope grab, the rope grab should be positioned as high above the D-ring as the work will allow. By doing this, the worker minimizes not only the Free Fall Distance but also the Fall Stopping Distance required to completely arrest a fall.

## **Bottoming Out**

Bottoming out occurs when a falling worker hits a lower level, the ground, or some other hazard before the fall is fully arrested. This occurs when Total Fall Distance is greater than the distance from the work surface to the next level, the ground or some other hazard below. Fall-arrest system must be planned, designed and installed to prevent any risk of bottoming out.

## **Pendulum Effect**

The farther you move sideways from your anchor point, the greater the chance of swinging if you fall. This is known as the "pendulum effect" And the more you swing the greater the force with which you'll strike columns, walls, frames, or other objects in your path.

Swinging may even cause your taut lanyard or lifeline to break where it runs over rough or sharp edges.



To minimize pendulum effect, workers should keep lanyard or lifeline perpendicular from edge to anchor. Where work extends along an open edge, anchor points can be changed to keep lanyard or lifeline perpendicular as work progresses. Another solution is to run a horizontal lifeline parallel to the edge. The worker attaches lanyard to lifeline, moves along the edge, and the lanyard travels at the same pace, remaining close to perpendicular at all times.

Employers, supervisors, and workers all have responsibilities in reducing or eliminating falls in construction. This section has provided guidelines for fall protection, including both fall prevention and fall arrest. But the information means nothing unless employers, supervisors, and workers apply it on the job. Workers who have any questions about fall hazards or fall protection should ask their supervisor. When it comes to fall protection, make sure you know how the equipment works and how to use it. Your life depends on it.

## **COMPANY FIRE SAFETY REQUIREMENTS**

### **Ontario Fire Code**

Notwithstanding any general or specific requirements of any other legislation, or Company requirements, the provisions of the Fire Code Will prevail.

The Ontario Fire Code requires all facilities to prepare, have approved and implement a Fire Safety Plan.

### **Welding, Cutting & Open Flame Work**

The following precautions will be taken while performing welding, torch cutting or other operations involving the application of open flame:

- The entire area within 8 meters shall be swept clean before and during such operations and all combustible materials shall be removed
- The immediate area in which such operations are performed will be hosed down with water before and after such operations, unless the use of water would cause properly damage.
- A fire-watcher will be present during all such operations and will remain at the location of such operations for 2 hours after the completion of such operations.

- There will be at least one multi-purpose fire extinguisher of an approved type, and in proper working order within 8 meters of such operations.

### **Electrical Devices and Equipment**

All electrical devices and equipment used at **Mitchell Fire Protection Systems** must bear the approval of the Canadian Standards Association (C.S.A.) or the Ontario Hydro.

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