

Section 20 - Fall Prevention Plan

PURPOSE

A Fall Prevention Plan for all workers is very important in the prevention of falls from heights in construction. Falls from heights in construction continues to be the leading cause of serious and fatal accidents. Through the use of a Fall Prevention Plan, the Site Management Team can Recognize, Evaluate and Control the causes of falls from heights. Developing Rescue Procedures will ensure prompt response and medical aid to the affected worker.

SCOPE

The Fall Prevention Plan must include a review of suspension trauma, rescue procedures, and methods to alleviate the risk for all workers using Fall Protection Harness systems where any potential fall hazard may exist.

RESPONSIBILITIES

Health and Safety Coordinator Responsibilities:

- Ensure that competent trainers are delivering the training to all required workers and supervisors according to site specific Policies and Procedures, and Occupational Health and Safety Act and Regulations.
- Work with management team to define a site specific Fall Prevention Plan and site specific written fall rescue procedure within the Site Specific Safety Plan (SSP).
- Ensure appropriate training and testing is conducted for all required company personnel to ensure thorough understanding of the appropriate procedures and work practices relating to Fall Prevention.
- Maintain Fall Prevention training records at head office.
- Distribute and communicate information to the appropriate parties regarding any nonconformance or deficiencies reported.
- Comply with all the requirements as defined under the Occupational Health and Safety Act and Regulations.
- Assist in developing corporate health and safety documentation, policies and procedures where required.
- Distribute and communicate information to the appropriate parties regarding any nonconformance or deficiencies reported.

Senior Management Responsibilities:

- Comply with all the requirements as defined under the Occupational Health and Safety Act and Regulations.
- Ensure that the equipment, materials and protective devices are provided, maintained in good condition and used as prescribed.
- The measures and procedures prescribed are carried out in the workplace.

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Project Manager Responsibilities:

- Purchase and replace all fall protection equipment as required.
- Ensure equipment, materials and protective devices are provided, maintained and used as required at site and office locations.
- Provide required protective devices, measures and procedures required by the Occupational Health and Safety Act and Regulations.

Superintendent Responsibilities:

- Review Subcontractor documents to ensure all Subcontractors can implement their workplace specific requirements and the site specific expectations under the SSP.
- Ensure that regular inspection of all fall protection equipment is completed and documented by a competent worker.
- Ensure equipment, materials and protective devices are provided, maintained and used as required at site and office locations.
- Provide required protective devices, measures and procedures required by the Occupational Health and Safety Act and Regulations.

Foreman Responsibilities:

- Ensure potential fall hazards related the work are defined along with the appropriate procedures and required Personal Protective Equipment (PPE) within the site specific SSP.
- Advise all workers and Subcontractors on the risks associated with the assigned work.
- Ensure inspection records on fall protection equipment and devices are kept and maintained.
- Ensure appropriate training records are available on site.
- Ensure that workers are trained to use the equipment and follow the procedures specified for the task in the site specific SSP.
- Ensure that every worker and Subcontractor have the appropriate fall protection equipment including a safety harness, lanyard, shock absorber, rope grab, and self-retracting device for the hazardous or dangerous conditions the worker may be exposed to.
- Check guardrails and covers of floor/roof openings daily to ensure they are installed properly and adequate for the situation.
- Identify appropriate anchor points to be used and configuration of lifelines or other systems.
- Remove all damaged fall protection equipment and/or component from service, and provide appropriate replacements.
- Ensure that a site specific written rescue procedure is in place and known by all the workers and Subcontractors.
- Where so prescribed, maintain existing training records and provide, where required, worker with additional written instructions as to the measures and procedures to be taken for protection of the worker.

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Workers Responsibilities:

- Appropriately use and wear all required protective equipment where required.
- Visually inspect all protective equipment prior to use.
- Works in the manner and with the protective devices, measures and procedures required by the Occupational Health and Safety Act and Regulations.
- Report to his or her Foreman any contravention of the Occupational Health and Safety Act and Regulations or the absence/defect in any equipment or protective device.

PROCEDURE

The **Project Manager** and/or **Superintendent** must ensure that the Fall Prevention Plan is reviewed with all Workers and Subcontractors. This review should be done in conjunction with the Fall Prevention and Working at Heights Training or site orientation.

Prior to the commencement of work by any of our workers or Subcontractors on a project, it will be the responsibility of the **Superintendent** and the **Foreman** to review the Fall Prevention Plan with each of our workers or Subcontractors during our site level orientation or through Safety Talks.

Where site specific needs vary from the Fall Prevention Plan, the Site Management Team (**Superintendent** and the **Foreman**) with the assistance of the **Health and Safety Coordinator** where required must provide ongoing revisions to the plan accordingly to the site specific hazards.

DISTRIBUTION

The Fall Prevention Plan will be distributed to all workers and subcontractors and available on site for review.

RECORDS

Documentation of all Fall Prevention Training and subsequent reviews of the Fall Prevention Plan will be maintained on site and copied to the Project Manager and Health and Safety Coordinator upon completion of training or reviews.

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FALL PREVENTION PLAN

All Employees

Typical fall from heights hazards that are encountered by workers in construction include, however are not limited to the following;

- Elevator shaft openings
- Stair well openings
- Perimeter openings
- Roof tops
- Excavation, Trench or Caisson openings
- Work off ladders
- Elevated work platforms
- Etc.

Fall from heights can be eliminated through the use of any of the following control strategies alone and/or in combination with others;

1. When possible, implement policies restricting certain types of work that put worker at risk of falling from heights
2. Training on Recognition/Evaluation and Control of falls from heights
3. Installation of guardrail systems or floor coverings;
4. Use of Travel Restraint system;
5. Use of Travel Restrict system and
6. Use of Fall Arrest systems when necessary

Falls from Heights Plan

Policies for prevention of falls from heights;

1. All workers must receive fall prevention training prior to the commencement of work and subsequently reviewed on a yearly basis
2. Workers are not allowed to access any unguarded roof areas at any time unless a roof plan has been implemented and the worker has received training on the plan.
3. Workers must not enter areas where guardrails or floor coverings around/over floor openings, elevator shafts are not present.
4. The installation of guardrails around openings and handrails on stairs will only be completed by trained workers utilizing travel restraint systems when necessary. (This must be done under the direction of the Supervisor)
5. Excavation or Trench openings that are not sloped in accordance with the legislative requirements and that a worker could fall into more than 2.4 metres deep shall be protected by an appropriate barrier (Subcontractors responsibility). This will be monitored by the Site Management Team and workers.
6. Caissons must be adequately guarded by the Subcontractor. This will be monitored by the Site Management Team and our workers.
7. Work off ladders will be limited, however, should a worker be required to work off a ladder, the following must be remembered;

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- the ladder must be in safe working condition and must be inspected prior to use;
 - the ladder must be secured (top and bottom) (stabilizers can also be used to assist with stabilization)
 - the ladder must be of an appropriate length and design for the work. Extension ladders must extend 900 millimetres (3 feet) above the floor or landing
 - set the ladder up in accordance with the manufactures instructions and as a minimum for extension ladders a ratio of 1 foot out for every 4 feet up
 - three-point contact must be maintained while on the ladder;
 - ladders are generally intended for access/egress, therefore work from ladders should only be short in duration
 - maintain clean footwear while ascending or descending from a ladder
 - never set up ladders near live electrical conductors
8. Work off Elevated Work Platforms may be required from time to time. This work will only be performed by trained workers. Fall protection must be used at all times while in powered elevated work platforms.

Travel Restraint and Fall Arrest Components

Travel Restraint, Fall Restrict or Fall Arrest System components may vary in arrangement. All components in the system must be used as per the manufactures instructions and as a minimum, the systems must include the following;

- appropriate anchor points for the type of system in use
- the user must wear a Full Body Harness equipped with a Lanyard (shock absorbing lanyard preferred for most applications – some exceptions do exist)
- life lines designed for the system (when necessary)
- rope grab or other movement control device (when necessary)
- self locking connecting devices to connect various components of the systems
- material to protect the life line from being cut, chaffed or abraded (when necessary)

Other Fall Protection System Considerations

- understand how the system can be used safely and do not hesitate to ask for assistance from you supervisor.
- only use the system in accordance with the manufactures requirements
- do not expose the equipment to corrosive materials
- do not expose the equipment to sparks or flames
- inspect the system and all of its components prior to each use
- report any defects of the equipment or absence of devices immediately to your supervisor and only proceed if corrective actions have been taken
- if any fall protection equipment has been involved in a fall, it must be immediately taken out of service and sent to the manufacturer for inspection.
- fall arrest systems must be set up in a manner which will not allow the worker to hit an object or the level below.
- only equipment approved by your supervisor may be used in a fall protection system

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FALL ARREST RESCUE PROCEDURES

PURPOSE

To safely rescue a worker who has fallen and is suspended in a harness and to prevent the fallen worker from the potential serious health effects resulting from prolonged suspension.

AFFECTED PERSONS

These procedures apply to ALL supervisors and employees who are required to utilize Fall Arrest equipment (and/or supervise workers using fall arrest equipment).

POTENTIAL SERIOUS HEALTH EFFECTS OF PROLONGED SUSPENSION

After a worker has been involved in a fall where fall protection devices have deployed and the worker has been suspended, there is potential for “**Suspension Trauma/Orthostatic Intolerance**”. This can be a potentially very serious/grave condition for a worker who remains suspended in a harness for a prolonged period after a fall. The vertical position that a worker remains in (for a period of time) after a fall, can lead to venous pooling of blood in the legs. An incorrectly executed rescue can cause cardiac arrest therefore rescuers must understand the phenomenon of orthostatic intolerance and how to rescue a worker who has been suspended in a harness.

Devices such as relief straps should be utilized to aid in the prevention of Orthostatic Intolerance. Workers can maintain them on their harnesses while using fall protection and this should be considered as the first step in any rescue and the prevention of Orthostatic Intolerance.

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IF A WORKER IS OBSERVED SUSPENDED IN A FALL ARREST SYSTEM

1. **Assess** the situation – ensure your safety at all times (**DO NOT** attempt a rescue or enter a work area with an unguarded edge without using an appropriate fall protection system). Only trained persons are allowed to conduct rescue operations.
2. **Obtain assistance** – alert your supervisor, the rest of the crew and the Constructor or Owner (identify the exact location and the nature of the emergency).
3. If the suspended worker is conscious, try to determine the extent of his/her injuries so that the appropriate emergency services personnel can be notified.
4. **Call 911**- the supervisor will designate workers to meet emergency services personnel at the entrance to the site.

Note: Time is of the essence, the rescue plan must be initiated immediately to help prevent potential injury to the fallen worker.

OTHER WORKERS MUST:

1. Assist as requested by your supervisor or emergency services personnel.
2. Stay clear of activities. If you are not involved directly in the rescue, remain at a safe distance from any unprotected edges and from the rescue area so as not to interfere with the rescue operations.
3. The status of the affected (injured) worker and further direction will be provided as it becomes available.

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OPTION # 1 - FALL ARREST RESCUE – POWERED ELEVATING WORK PLATFORM (PEWP)

Note: Workers will be prevented from exposure to fall hazards when working from the PEWP using a guardrail system and a full body harness with lanyard connected to an appropriate anchor point as defined in the manufacturer's operating instructions.

1. If two workers are performing work from the PEWP, lower the platform to ground level so that one worker may dismount from the platform. PEWP are not designed for use by more than two workers at a time.
 2. Once the PEWP reaches the ground, the worker dismounting from the platform should only disconnect their lanyard from the D-ring on their full body harness. The other end of the lanyard should remain connected to the anchor point in the platform for use by the suspended worker upon rescue. The worker dismounting is responsible to call 911 (if necessary). Where necessary (only one worker using the PEWP) attach another lanyard to the anchor point in the PEWP.
 3. Raise the platform to a position directly underneath the suspended worker and slowly continue raising the platform until the suspended worker is inside of the guardrails of the platform.
Extra caution should be taken if the suspended worker is unconscious. If it is suspected that the worker has sustained head or spinal injuries do not move the injured worker, wait until medical help arrives.
 4. If the fallen worker is conscious and has not sustained any head or spinal injuries, connect the spare lanyard that is already attached to the anchor point on the PEWP to the d-ring on the back of the suspended worker's full body harness.
 5. Disconnect the existing self-retracting lifeline or lanyard.
- Note:** The shock-absorbing lanyard or self-retracting lifeline that the suspended worker is connected to should not be removed until **after** the suspended worker is safely inside the guardrails of the PEWP.
6. Once the original self-retracting lifeline or shock-absorbing lanyard is disconnected, carefully lower the platform to ground level.
 7. At ground level, administer first aid to the rescued worker, if necessary. Only trained workers are to administer first aid and must have the permission of the rescued worker to do so (if the rescued worker is conscious).
 8. Secure the incident scene for further investigation.
 9. Notify Construction Project Manager and the Health and Safety Coordinator immediately for direction and notification requirements.

Pre-Job Review

- | | | | |
|----|--|------------------------------|-----------------------------|
| a. | Is the equipment available | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| b. | Is an operator available | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| c. | Is the equipment in Reasonable Proximity | <input type="checkbox"/> Yes | <input type="checkbox"/> No |

PEWP Rescue -- Site Specific Notes

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OPTION # 2 - FALL ARREST RESCUE – USING AN EXTENSION LADDER

Note: Extension ladders of the correct length must be on site and available to perform this type of Lower level rescue (3 Metres or less). This type of rescue will only be performed if a Power Elevated Work Platform is not available.

1. Rescue of a suspended worker using an extension ladder should only be performed if the suspended worker is conscious and has not sustained any injuries that would prevent him/her from ascending or descending a ladder.
2. Position the extension ladder adjacent to the position of the injured worker with the appropriate ladder set-up.
3. Carefully secure the ladder at the top and bottom.
4. Instruct the suspended worker to climb onto the ladder.

Vertical Lifeline Fall - lifeline extending to the ground

5. Once **three-point contact is established and maintained** on the ladder, the suspended worker will;
 - a) ascend to location of the rope grab on the vertical life line
 - b) slide the rope grab to waist level
 - c) descend 3-4 rungs
 - d) repeat steps b and c until the ground level is reached

Vertical Lifeline Fall – lifeline not extending to the ground

6. Once **three-point contact is established and maintained** on the ladder, the suspended worker will remain on the ladder until emergency services arrive;

Pre-Job Review

- | | | |
|---|------------------------------|-----------------------------|
| 1. Is the equipment available | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| 2. Is an operator available | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| 3. Is the equipment in Reasonable Proximity | <input type="checkbox"/> Yes | <input type="checkbox"/> No |

Ladder Rescue -- Site Specific Notes

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OPTION # 3 - FALL ARREST RESCUE ASSISTANCE – ZOOM BOOM FORKLIFT

In the event that a Power Elevating Lifting Device is not available, the following procedure has been prepared to aid in the prevention of Orthostatic Intolerance to a worker suspended in a harness. This procedure isn't intended to be used for raising or lowering the worker, rather simply to provide support until Emergency Services arrive.

CIRCULATION RELIEF – USING AN A PLATFORM

STEP 1

- A. Ideally purchase or build a sturdy platform with guardrails and a means of securing the platform to the carriage of the Zoom Boom Forklift ahead of time and leave on site for Emergency Rescue purposes only.
- B. If A hasn't been done, attempt to locate a platform/cage that can be used for this support function. Secure the platform/cage to the carriage of the Zoom Boom Forklift.
- C. If A & B aren't available, build a sturdy/safe makeshift platform (that can be secured in place) using suitable materials that will help provide support for the worker.

STEP 2

- 1. Zoom Boom Forklift operator to pick up the platform and secure it to the carriage of the Zoom Boom and drive to the desired location.
- 2. The operator will place the machine in "park", apply the hand brake and carefully lift the platform/cage (angled slightly back towards the carriage – to prevent the secured platform from slipping) into position below the suspended workers feet.
- 3. The operator will then inch the platform up slowly to allow for the worker to stand on the platform. The suspended worker must remain secured to the fall arrest system at all times.
- 4. Await the assistance of emergency response personnel and follow their instructions.

Pre-Job Review

- | | | |
|---|------------------------------|-----------------------------|
| 1. Is the Sturdy Platform available | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| 2. Is an Zoom Lift operator available | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| 3. Is the equipment in Reasonable Proximity | <input type="checkbox"/> Yes | <input type="checkbox"/> No |

Forklift/Zoom Lift Relief -- Site Specific Notes

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