

Title: Fall Protection

1.0 Purpose

The purpose of this procedure is to provide guidance to employees that are working at heights at or above 4 feet. This procedure establishes the minimum acceptable elements of a Fall Protection policy.

Regulatory Note.

The Occupational Safety and Health Administration (OSHA) does not have a specific standard to address fall protection in General Industry, however OSHA will follow the guidelines established in Standard 1910.23 dealing with the proper guarding of floor and wall openings, when citing companies for fall related issues.

2.0 Forms

3.0 Definitions

4.0 Fall Hazards Specific to Waupaca Foundry, Inc.

- 4.1 Working on top of machinery and equipment such as Vertical Molding Machines (VMM) , Core machines, casting coolers, conveyors, or overhead cranes.
- 4.2 Working on overhead plant facilities equipment such as heaters, blowers, exhaust equipment, air conditioners, and piping systems.
- 4.3 Working on building roofs including hazards from roof openings, unsupported surfaces, or working near the roof edge.
- 4.4 Working at heights on conduit, wiring, cable trays, ductwork, piping, lighting fixtures.
- 4.5 Walking or working on overhead I-Beams or H-Beams.
- 4.6 Exposure to falls into or onto tanks, scrap pits/containers, moving conveyors or compactors.
- 4.7 Working in High Reach equipment (Raymond lift) , or on Aerial work platforms.
 - 4.7.1 Employees working on aerial lift platforms shall maintain a firm footing on the platform. The use of ladders, planks or other devices within the lift to achieve additional height is prohibited.
 - 4.7.2 Extending and articulating boom platform lifts require personal fall protection equipment to be worn and anchored inside of the lift.
 - 4.7.3 Vertical lift equipment provide adequate fall protection as long as the guardrails are in place on all sides of the lift and the occupant remains inside of the confines of the guardrail. If the employee is required to remove part of the guardrail, or reach outside of its containment, personal fall protection must be used.

5.0 Means of Fall Prevention and Hazard Control

- 5.1 Fall Prevention includes any means used to reasonably prevent exposure to a fall hazard. All company employees involved in work activity that exposes them to a fall hazard of 4 feet or greater shall minimize the exposure by using one or more of the following:

UNCONTROLLED

Title: Fall Protection

5.1.1 Elimination of the hazard.

Procedural changes may be made to eliminate hazards that consider another method for completing the work such as the use of aerial lift equipment or high reach tools such as long handled disconnects rods or bulb extractors.

5.1.2 Guarding against the hazard.

Engineering controls may guard against the hazard. Such controls are physical changes or additions to the work area. Examples may include a standard guardrail and toe board, properly designed catwalks and access platforms, gates, floor and wall opening covers.

5.1.2.1 Standard guardrails are to be used for open-sided floors, platforms and runways four feet or more above the adjacent floor or ground level on all open sides, except where there is an entrance to a ramp, stairway, or fixed ladder.

5.1.2.2 A standard guardrail consists of a top rail and posts with a vertical height of 42" from the upper surface of the top rail to the floor or platform. The intermediate rail shall be approximately halfway between the top rail and the floor.

5.1.2.3 Posts and framing shall be constructed to withstand a load force of 200 pounds applied in any direction at any point of the top rail.

5.1.2.4 Toe boards are 4 inches in vertical height and should be included whenever persons can pass beneath the open sides, or when there is moving machinery, or equipment from which falling materials could create an additional hazard.

5.1.3 Designation of Warning Line Systems and Controlled Access Zones

Warning line systems and work in controlled access zones must be developed in accordance with OSHA regulation 1926.502 and must be approved by EH&S or their designee before employees are exposed to fall hazards.

5.1.4 Use of personal fall arrest systems designed to protect an employee during a fall. Included in this system are a body harness, lanyard, and anchorage which are tested devices that function together to stop a freefall and minimize the potential for injury. A fall arrest system shall only be used after other solutions have been exhausted.

5.2 Consideration should be give to other contributing factors when choosing appropriate fall protection. For example the number of employees in the area, the amount of time to be spent in the area, the frequency of entry into the area and weather conditions such as wind, rain or snow and ice that may create additional hazards in combination with a fall.

Title: Fall Protection

5.3 Education and Training of employees as outlined in section 5.0.

6.0 Personal Fall Protection Equipment Selection and Care

All fall protection equipment shall be approved by the Safety Department prior to purchase. All components of the fall arrest system shall be compatible and interchangeable. Components of a fall arrest system shall not be used beyond the manufacturer's recommended date of expiration unless approved by the Safety Department.

Only employees who have been trained in hazard recognition and selection of proper fall protection shall be allowed to use personal fall arrest systems.

Permanently installed fall protection systems shall be inspected on a regular basis as determined by the Safety Department but at a minimum on a quarterly basis.

Personal Fall Protection Equipment Components – All systems are made up of three components, the anchor point, the body harness, and the decelerating device or lanyard.

6.1 Anchor Point General Requirements: The anchor point is a secure point of attachment for lifelines, lanyards, or deceleration devices. The anchor point is independent and does not support or suspend the employee.

- The anchor point must be able to support the weight of at least 5000 pounds per each worker attached;
- The anchor point should be located at a height that reduces the freefall distance to 6 feet or less;
- The anchor point should be located so that if a freefall occurs an attached worker will not collide with any lower level hazard;
- Work shall be done directly under the anchor point to avoid a swing-fall injury;
- When selecting an anchorage point, consideration to the shock absorber elongation (3.5 feet) must be given;
- Anchor point must allow for the snap hook keeper to close completely;
- If anchorage point is questionable, plant engineering personnel should be contacted for further evaluation.

6.2 Examples of Anchor Points:

- Guard post or guardrails that have been constructed with 6 inch or larger steel pipe or square tubing in sound condition;
- All building columns;
- Structural I-Beam;
- Roof support Trusses
- Any manufacturer identified anchor point in personal lifts or fork truck platforms
- Any designated tie off points that have been approved by plant engineering for this purpose.

6.3 Examples of Unapproved Anchor Points:

- Guard post or guardrails that have NOT been constructed with 6 inch or larger steel pipe or square tubing in sound condition;
- Ladders

UNCONTROLLED

Title: Fall Protection

- C-Clamps (unless approved “Universal” “Beam clamp”)
- Electric conduit
- Pipe runs, unless approved by engineering based on pipe diameter, length of support, etc.)

6.4 Anchor Point Inspection

- Inspect prior to each use for mildew, rust, wear, cracks or fracture, damage, and other deterioration. Defective anchor points should not be used and should be removed from service. Anchor points that are part of the building structure and found to be damaged shall be reported to engineering and not used.
- Any non-structure anchor point that sustains the impact of fall forces shall be removed from service and turned into the Safety Department. Structural anchor points that sustain fall forces shall be reported to the engineering department.

6.5 Body Harness General Requirements:

The body harness effectively distributes the impact load forces over at least the thighs, pelvis, waist, chest and shoulders thereby minimizing the possibility of injury in the event of a fall. Body belts shall never be used for fall protection but for positioning only when used in conjunction with a personal fall protection system.

- The D-ring located in the upper middle of the back on the full body harness shall be used for fall protection. All other rings shall be used for positioning or rescue.
- The harness shall fit snugly, yet comfortably over normal work clothing.
- Buckles and pull straps should close completely around the legs, chest and waist.
- Excess strap material shall be tucked into the keepers provided on the harness.
- Select the proper size harness. If the fit is uncomfortable, too loose, or the wearer weighs in excess of 310 lbs, contact the safety department for a custom fit harness and lanyard. A custom harness may be built and purchased for employees weighing between 310 lbs and 400 lbs.
- Do not attach any tools or other snap hooks to fall arrest webbing, positioning suspension or retrieval D-rings on the harness.
- Employees shall not alter the harness by adding buckle holes and/or cutting straps.

6.5.1. Body Harness Inspection

- Before each use, carefully inspect the harness for signs of mildew, wear, damage and other deterioration. Defective body harnesses shall not be used and removed from service.
- Visually inspect the harness by running the webbing over your fingers looking for loose threads, pulled rivets, burns, cuts, abrasions and evidence of chemical or physical deterioration. If there is a risk of being cut while inspecting, wear gloves.

UNCONTROLLED

Title: Fall Protection

- Visual inspect to ensure buckles meet the keepers and eyelets are not oblong or stressed.
- Inspect all hardware components for cracks, nicks, and defects as well as an out of shape appearance which may damage or saw cut the webbing during use.
- A full body harness that sustains the full impact of fall forces shall be removed from service and turned into the safety department.

6.5.2. Body Harness Care

- Clean and maintain the full body harness in accordance with manufacturer's instructions.
- Wash the nylon harness in warm water with mild soap and hang by back D-ring to allow to completely dry.
- Avoid the use of harsh chemicals or cleaners to clean the harness.
- When not in service, hang the body harness by the back D-ring to prevent damage to the webbing and threading of the harness.

6.6 Connecting Devices General Requirements

Connecting Device or Lanyard is a flexible line of rope, wire rope or strap which is used to secure the full body harness to the a deceleration device, lifeline or anchorage. The device may be a one-time use style of lanyard or fall limiter or one that can be repaired and placed back into service.

- Use only lanyards that contain a locking snap hook.
- The lanyard shall be attached to the anchor point in such a manner that the free fall distance is limited to 6 feet.
- The shock absorber on the lanyard will allow the lanyard to elongate an additional 3.5 feet. The additional distance must be taken into account when selecting an anchor point.
- The lanyard shall be connected to the anchor point in such a manner as to prevent striking a lower level in the event of a fall.
- Do not tie the lanyard in knots to shorten its length. Obtain a shorter lanyard or select the proper fall limiter.
- Do not attach lanyards together. Select a proper fall limiter if more length is needed.
- Do not tie a lanyard back onto itself unless specifically designed to do so by the manufacturer.
- While traveling, do not attach the unused locking keeper back onto the webbing of the body harness. Use the provided tie off on the harness or hand carry.
- Lanyards shall be constructed of either nylon or wire rope.
- Never disable a locking keeper or alter the locking device in any way.
- Do not use a lanyard for rigging.
- Prevent the lanyard from coming into contact with sharp surfaces, high temperatures, welding splatter or electrical wiring.
- Wear pads shall be used to protect the lanyard from sharp surfaces and high temperatures.
- Ensure the snap hook is so positioned so that it is never load bearing.

UNCONTROLLED

Title: Fall Protection

- Ensure the locking keeper on both ends of the lanyard fully engage and lock onto the full body harness and anchor point respectfully.

6.6.1. Connector Device Inspection

- Before each use, carefully inspect the connector device for mildew, wear, damage, and deterioration. Defective connecting devices shall not be used and shall be removed from service.
- Visually inspect for loose threads, pulled rivets, burns, cuts, abrasions or evidence of chemical or physical deterioration. If there is a risk of being cut while inspecting, wear gloves.
- Inspect fall limiters for proper engagement and release of the stop mechanism.
- All snap hooks and carabineers shall be checked for sharp edges, defects and cracks that may damage or saw cut the webbing while in use.
- Any connecting device that sustains the full impact of fall forces shall be removed from service and turned into the Safety Department.

7.0 Education and Training

It is the responsibility of the company to provide training to the employees in the areas of hazard recognition, fall prevention, fall hazards, and available fall protection systems.

This training shall occur at a minimum of every two years. In addition, fall protection awareness level training is provided biennially to all personnel.

The training shall include the following topics:

- When and where fall protection is required
- Requirements for the use of fall protection
- How to inspect fall protection equipment
- How to maintain and care for fall protection equipment
- Proper donning and doffing of fall protection equipment which includes full body harnesses,
- lanyards, anchor points as well as weight limits of components
- How to identify proper anchor points
- What to do in the event the employee sustains fall forces
- What to do with fall protection equipment that has sustained full fall forces

8.0 Responsibility

8.1 Company Responsibility:

8.1.1 Provide equipment which is appropriate for the fall hazard.

8.1.2 Provide competent training to employees addressing the prevention and protection systems available for use and the hazards involved.

Retraining will be provide if changes in the workplace render previous training obsolete, if there are changes in the equipment used, or if the employees do not understand, or demonstrate understanding and the ability to use appropriate fall protection.

UNCONTROLLED

Title: Fall Protection

- 8.1.3 Ensure adequate supervision of employees involved in areas involved in the fall protection program.
- 8.1.4 Assist in preplanning for specific job tasks as requested, provide additional information, equipment and training as needed or requested.
- 8.2 Project Manager, Supervisor, and Foreman:
 - 8.2.1 Evaluate each work during preplanning for a job/work area for fall hazards, and select the most appropriate fall protection in order to eliminate the hazard. This selection may include elimination of the fall hazard, permanent guarding of the area, or temporary fall protection such as personal fall protection equipment.
 - 8.2.2 The manager is required to evaluate all work areas with a fall hazard of 4 feet or more prior to the work starting. A decision shall then be made regarding the fall protection that will be used. The primary responsibility is taking the time to evaluate the work.
If an employee sustained a fall could the following questions be answered?
 - Why wasn't a guardrail in place?
 - Why wasn't an aerial lift used?
 - Why wasn't the person tied off properly?
 - Did you ask for assistance from your supervisor or the safety dept?
 - 8.2.3 Supervision of personnel involved in work with a fall hazard of 4 feet or more. Ensure proper use and understanding of the equipment in use. This supervision includes the use of discipline for employees that do not follow the policy, neglect to use the fall protection, or use it inappropriately.
- 8.3 Employees:
 - 8.3.1 It is the responsibility of the employee to use the most appropriate fall protection when at a height at or above 4 feet.
 - 8.3.2 The employee shall be familiar with the fall protection equipment and use it appropriately.
 - 8.3.3 Prior to use, the employee shall inspect the components of the fall protection, and damaged equipment, or equipment that has sustained a fall shall be removed from service.