**HSE Procedure for Working at height**

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### ****1. Introduction****

The **HSE (Health, Safety, and Environment) Procedure for Working at Height** is designed to ensure the safety and well-being of all personnel engaged in tasks performed at elevated positions. This document provides a structured approach to minimize risks, comply with legal standards, and establish best practices for working at height.

#### **1.1 Purpose**

The primary purpose of this procedure is to:

* Protect employees and contractors from the hazards associated with working at height.
* Establish clear guidelines for the safe execution of tasks performed above ground level.
* Ensure compliance with applicable legal and regulatory requirements, such as OSHA Standard 1910.140 and other international standards.
* Promote a culture of safety by fostering awareness and accountability for all individuals involved in working-at-height activities.

#### **1.2 Scope**

This procedure applies to:

* **All Locations**: Any workplace, including construction sites, industrial facilities, warehouses, and offices, where work is performed at an elevated position.
* **All Personnel**: Employees, contractors, and third-party workers engaged in activities such as maintenance, installation, inspection, or any task involving a risk of falling.
* **Equipment Use**: The use of ladders, scaffolding, aerial platforms, and personal fall protection systems.
* **Hazard Management**: Tasks performed near unprotected edges, fragile surfaces, or any elevated area that poses a fall risk.

This document covers all work-at-height activities where there is a risk of falling that could cause injury, irrespective of the height above ground.

#### **1.3 Definitions**

For clarity, the following key terms are defined:

* **Working at Height**: Any task performed at a location where a fall from one level to another could result in personal injury. This includes working on ladders, scaffolds, rooftops, or other elevated platforms.
* **Fall Protection**: Systems and measures designed to prevent or mitigate falls, including guardrails, safety nets, fall arrest systems, and positioning devices.
* **Fall Arrest System**: A system designed to stop a fall in progress, including components such as a full-body harness, lanyard, and anchor point.
* **Anchor Point**: A secure point of attachment for fall protection equipment, capable of withstanding required loads as specified by standards.
* **Hazard**: Any condition, activity, or material that has the potential to cause harm, such as unguarded edges or unstable surfaces.
* **Risk Assessment**: The process of identifying hazards, evaluating risks, and implementing measures to eliminate or control those risks.
* **Personal Protective Equipment (PPE)**: Specialized equipment worn by individuals to protect against workplace hazards, such as helmets, safety harnesses, and protective footwear.
* **Competent Person**: An individual who has the knowledge, training, and experience to identify and address hazards related to working at height.
* **Fragile Surface**: Any surface, such as glass or corrugated roofing, that is not strong enough to support a person’s weight and may lead to a fall if stepped on.

**2. Legal and Regulatory Requirements**

#### **2.1 Relevant Standards**

To ensure the safety of employees and compliance with regulatory requirements, organizations must adhere to various legal standards and guidelines related to working at height. These standards outline the minimum requirements for safe practices, equipment, and training. Below are the key standards:

**a. OSHA 1910.140 (General Industry Standards – Personal Fall Protection Systems):**
This standard issued by the Occupational Safety and Health Administration (OSHA) establishes criteria for personal fall protection systems in the workplace. Key provisions include:

* **System Requirements:** Fall arrest, positioning, and travel restraint systems must meet minimum performance and testing standards.
* **Inspection and Maintenance:** Equipment must be inspected before each use and regularly maintained.
* **Anchor Points:** Anchor points used for fall arrest systems must support at least 5,000 pounds per worker or follow safety factors determined by a qualified person.
* **Harness Use:** Full-body harnesses must be used in personal fall arrest systems.

**b. ISO 45001:2018 (Occupational Health and Safety Management Systems):**
This international standard provides a framework for managing occupational health and safety risks, including working at height. Key features include:

* **Risk Assessment:** Identifying hazards and implementing controls for working at height.
* **Hierarchy of Controls:** Emphasizing elimination of hazards, engineering controls, and administrative measures before relying on personal protective equipment (PPE).
* **Continuous Improvement:** Encouraging regular review and updates to safety procedures to reduce incidents.

#### **3. Risk Assessment for Working at Height**

Risk assessment is a critical component of ensuring safety while working at height. It helps identify potential hazards, evaluate associated risks, and implement controls to mitigate those risks effectively. Below is a detailed explanation of each subsection.

#### **3.1 Identifying Hazards**

Identifying hazards involves recognizing the factors that could lead to incidents or injuries during tasks at height. Key considerations include:

1. **Work Environment Hazards**
	* Uneven or unstable surfaces (e.g., rooftops, scaffolds).
	* Slippery or wet conditions due to rain, oil, or other substances.
	* Weather conditions, such as strong winds or heavy rain.
	* Poor lighting or visibility.
2. **Access Hazards**
	* Unsafe ladders or scaffolding.
	* Lack of proper guardrails or barriers.
	* Inadequate or unsafe anchorage points.
3. **Human Factors**
	* Lack of training or competency of workers.
	* Fatigue, stress, or distraction during work.
	* Improper use of safety equipment.
4. **Falling Object Hazards**
	* Tools, equipment, or materials that could fall from height and injure workers below.
5. **Equipment Hazards**
	* Faulty or poorly maintained equipment, such as harnesses or lanyards.
	* Inadequate personal protective equipment (PPE).

#### **3.2 Evaluating Risks**

After identifying hazards, the next step is to evaluate the risks associated with them. This involves assessing:

1. **Likelihood of Occurrence**
	* How probable is it that the identified hazard will lead to an incident?
2. **Severity of Consequences**
	* What could be the impact if the hazard results in an accident (e.g., minor injury, major injury, or fatality)?
3. **Vulnerable Populations**
	* Identify workers or bystanders who might be more at risk, such as inexperienced workers or those working near the hazard.
4. **Existing Control Measures**
	* Evaluate the effectiveness of current safety measures in place to mitigate the hazard.

**Risk Assessment Matrix**
A risk assessment matrix can be used to categorize risks as low, medium, high, or critical, based on the likelihood and severity of consequences. For example:

* Low Risk: Unlikely to occur, minimal injury potential.
* Critical Risk: Highly likely to occur, severe injury or fatality potential.

#### **3.3 Implementing Controls**

Once risks are evaluated, control measures must be implemented using the **Hierarchy of Controls** approach. This framework prioritizes the most effective methods of risk mitigation.

1. **Elimination**
	* Remove the hazard entirely, if possible. For example, perform tasks at ground level instead of height.
2. **Substitution**
	* Replace hazardous equipment or methods with safer alternatives. For instance, use mobile elevated work platforms (MEWPs) instead of ladders.
3. **Engineering Controls**
	* Introduce physical changes to the work environment to enhance safety. Examples include:
		+ Installing guardrails or edge protection.
		+ Securing platforms to prevent tipping or collapsing.
4. **Administrative Controls**
	* Implement policies, procedures, and training to reduce exposure to hazards. Examples include:
		+ Scheduling work during favorable weather conditions.
		+ Ensuring only trained personnel perform tasks at height.
		+ Creating safe zones below work areas to protect others from falling objects.
5. **Personal Protective Equipment (PPE)**
	* Use PPE as the last line of defense. Examples include:
		+ Full-body harnesses and lanyards.
		+ Hard hats to protect from falling objects.
		+ Non-slip footwear for stable footing.

**Emergency Preparedness**
Control measures must also include plans for responding to emergencies, such as a fall or equipment failure. This may involve:

* Training workers on rescue procedures.
* Equipping sites with first aid kits and communication devices.
* Designating a rescue team or emergency contacts.

**4. Fall Protection Systems**

**4.1 Types of Fall Protection**

**4.1.1 Fall Arrest Systems**

Fall arrest systems are designed to stop a fall in progress, minimizing the impact force on the worker. These include:

* **Full-body harnesses** that distribute the arrest forces over the shoulders, thighs, and pelvis.
* **Lanyards and shock absorbers** to reduce the force of a fall.
* **Self-retracting lifelines (SRLs)** for increased mobility.
* **Anchor points** rated to support fall arrest forces.

**4.1.2 Guardrail Systems**

Guardrails provide a physical barrier to prevent workers from falling off edges or platforms. Key features include:

* Top rails at a height of 42 inches (with a tolerance of ±3 inches).
* Mid-rails and toe boards to protect workers from falling objects.
* Materials strong enough to withstand at least 200 pounds of force.

**4.1.3 Safety Net Systems**

Safety nets are installed below the working area to catch workers in case of a fall. Requirements include:

* Nets placed as close as possible to the work area, but no more than 30 feet below.
* Regular inspection for damage or wear.
* Sufficient clearance beneath the net to prevent contact with the ground or other objects.

**4.1.4 Positioning Devices**

Positioning devices allow workers to perform tasks with their hands free while preventing falls. These include:

* Body belts or harnesses used with lanyards connected to anchor points.
* Equipment that ensures workers remain within a safe zone without risking a fall.

**4.2 Selection Criteria for Fall Protection**

Selecting the appropriate fall protection system involves:

* Conducting a hazard assessment.
* Evaluating the working height and environment.
* Considering the duration and frequency of the task.
* Ensuring compatibility with other PPE.
* Complying with OSHA and local regulations.

**5. Equipment Inspection and Maintenance**

**5.1 Pre-Use Inspection Checklist**

Before use, inspect all fall protection equipment for:

* Frayed, cut, or damaged webbing and straps.
* Loose or missing stitching.
* Corrosion, cracks, or deformities in metal components.
* Functionality of locking mechanisms and buckles.
* Clear identification labels and compliance markings.

**5.2 Periodic Inspection Requirements**

* Follow manufacturer’s recommendations for periodic inspections.
* Inspect all equipment at least once annually by a competent person.
* Maintain a record of inspections, including dates, findings, and actions taken.

**5.3 Maintenance Procedures**

* Clean harnesses and lanyards using mild soap and water.
* Store equipment in a cool, dry place away from sunlight or chemicals.
* Replace damaged or expired equipment immediately.

**6. Procedure for Using Fall Protection Equipment**

**6.1 How to Put on a Fall Protection Harness**

1. Inspect the harness for damage.
2. Untangle the straps and hold the harness by the D-ring.
3. Step into the leg straps and adjust snugly.
4. Pull the shoulder straps over your shoulders.
5. Secure the chest buckle and adjust for a snug fit.
6. Ensure the D-ring is positioned between the shoulder blades.

**6.2 Securing Anchor Points**

* Use anchor points that can withstand a minimum load of 5,000 pounds.
* Ensure anchor points are located directly overhead to minimize swing falls.
* Use certified and labeled anchor devices when available.

**6.3 Conducting Fit Tests**

* Perform a visual and hands-on check of the harness fit.
* Verify that straps are snug but allow full range of motion.
* Confirm that all buckles are securely fastened and locked.

**7. Safe Work Practices for Working at Height**

**7.1 Proper Use of Ladders and Scaffolding**

* Inspect ladders and scaffolding before use.
* Ensure ladders are on stable, non-slip surfaces.
* Secure scaffolding with guardrails and toe boards.

**7.2 Working on Rooftops and Elevated Surfaces**

* Use fall protection when working near unprotected edges.
* Ensure tools and materials are secured to prevent falling objects.
* Be aware of weather conditions that may increase risks.

**7.3 Emergency Situations and Rescue Plans**

* Have a rescue plan in place before starting work.
* Train workers on emergency response procedures.
* Ensure access to rescue equipment such as ladders, winches, or rescue kits.

**8. Training and Competency Requirements**

**8.1 Training Programs**

* Provide initial training on fall protection systems and working at height procedures.
* Include practical demonstrations and hands-on practice.
* Tailor training to specific job tasks and hazards.

**8.2 Refresher Training**

* Conduct refresher training annually or as needed.
* Address changes in procedures, equipment, or regulations.
* Include lessons learned from incident investigations.

**8.3 Record-Keeping**

* Maintain records of training sessions, including dates and attendee names.
* Keep certificates of completion for all workers.

**9. Emergency Response Plan**

**9.1 Rescue Procedures**

* Design rescue plans for specific work scenarios.
* Ensure rescuers have proper training and equipment.
* Practice rescue drills regularly.

**9.2 First Aid Protocols**

* Train workers in first aid and CPR.
* Provide first aid kits at all work locations.
* Ensure immediate access to medical assistance.

**9.3 Reporting and Investigation**

* Report all incidents, including near-misses, immediately.
* Investigate incidents to identify root causes and preventive measures.

**10. Monitoring and Review**

**10.1 Performance Metrics**

* Track key metrics such as incidents, near-misses, and training completion rates.
* Set goals for continuous improvement.

**10.2 Audit and Inspection**

* Conduct regular audits of working-at-height procedures.
* Inspect fall protection equipment and systems.
* Review compliance with legal and organizational standards.

**10.3 Continuous Improvement**

* Use feedback from audits, inspections, and incident reports.
* Update procedures and training materials as needed.

**11. Documentation and Records**

**11.1 Risk Assessment Records**

* Maintain detailed risk assessments for all working-at-height tasks.
* Update records regularly to reflect changes in tasks or conditions.

**11.2 Equipment Maintenance Logs**

* Record all inspections, repairs, and replacements.
* Include dates, findings, and responsible personnel.

**11.3 Training Records**

* Keep comprehensive records of training programs.
* Ensure records are easily accessible for audits and reviews.

**12. Appendix**

#### **12.1 Pre-Use Inspection Checklist**

A pre-use inspection checklist ensures that all equipment and safety measures are in place and functional before commencing work at height. Below is a detailed checklist for workers and supervisors to follow:

**Personal Fall Protection Equipment (PPE):**

* Inspect the **harness** for the following:
	+ Frayed, cut, or worn straps.
	+ Loose stitching or broken threads.
	+ Rusted, damaged, or deformed D-rings and buckles.
* Verify that the **lanyard** is free of damage:
	+ Check for cuts, abrasions, or chemical exposure.
	+ Inspect the shock absorber for signs of deployment.
* Ensure **anchor points** are:
	+ Strong, stable, and securely fastened.
	+ Free from rust, corrosion, or damage.
* Test **carabiners and connectors** for:
	+ Proper locking mechanism.
	+ Wear and tear or cracks.

**Work Area Preparation:**

* Inspect the **work surface** for stability:
	+ Ensure no loose materials, grease, or obstructions are present.
* Verify proper installation of **guardrails, toe boards, or barriers** where applicable.
* Confirm the presence and condition of **safety nets** (if used).

**Ladders and Scaffolding:**

* Check ladders for:
	+ Broken or damaged rungs.
	+ Stability and proper locking mechanisms.
* Inspect scaffolding for:
	+ Secure assembly and intact support systems.
	+ Proper load limits clearly marked and adhered to.

**Documentation and Authorization:**

* Verify that:
	+ All workers have received proper training and certifications.
	+ A valid permit-to-work is issued (if required).
	+ Emergency rescue plans and contact numbers are accessible.

#### **12.2 Emergency Contact List**

An emergency contact list ensures quick access to critical support in case of incidents. Below is a detailed template for the contact list:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Contact Type** | **Contact Name** | **Phone Number** | **Email/Alternate Contact** | **Notes** |
| **Site Supervisor** | John Doe | +1 234 567 890 | john.doe@company.com | First point of contact for incidents. |
| **Safety Officer** | Jane Smith | +1 345 678 901 | jane.smith@company.com | Handles safety and compliance issues. |
| **Emergency Medical Services** | Local EMS | 911 | N/A | Ensure direct access to this number. |
| **Fire Department** | Local Fire Station | +1 456 789 012 | fire.dept@city.org | Nearest station to the worksite. |
| **Rescue Team** | On-Site Rescue Unit | +1 567 890 123 | rescue.team@company.com | Specialized team for fall rescues. |
| **Equipment Maintenance** | ABC Equipment Co. | +1 678 901 234 | support@abcequipment.com | Contact for equipment repairs/issues. |
| **Site Security** | Security Desk | +1 789 012 345 | security@company.com | Monitors site access and incidents. |
| **Local Hospital** | XYZ General Hospital | +1 890 123 456 | er@xyzhospital.com | For injuries requiring immediate care. |

**Best Practices for Emergency Contact Management:**

1. **Accessibility:**
	* Post the contact list at easily visible locations around the worksite.
	* Ensure all workers have access to a digital or printed copy.
2. **Regular Updates:**
	* Review and update the contact list quarterly or whenever changes occur.
3. **Emergency Drills:**
	* Conduct periodic drills to ensure everyone knows how to use the contact list effectively.

### ****13. References****

The references section provides detailed information on the key legislation, standards, and additional resources relevant to the **HSE Procedure for Working at Height**. This ensures that the procedure is compliant with industry standards and provides avenues for further learning and understanding.

#### **13.1 Relevant Legislation and Standards**

**1. Occupational Safety and Health Administration (OSHA) Standards**

* **OSHA 1910.140**: Personal Fall Protection Systems
	+ Outlines the requirements for fall protection equipment, including performance, usage, and inspection criteria.
* **OSHA 1926 Subpart M**: Fall Protection in Construction
	+ Specifies safety standards for construction activities involving heights greater than 6 feet.
* **OSHA 1910 Subpart D**: Walking-Working Surfaces
	+ Covers general industry requirements for maintaining safe walking and working surfaces to prevent slips, trips, and falls.

**2. ISO Standards**

* **ISO 45001**: Occupational Health and Safety Management Systems
	+ A global standard that provides a framework for improving workplace safety and reducing risks.
* **ISO 31000**: Risk Management – Guidelines
	+ Focuses on risk identification, assessment, and management, particularly for tasks involving hazards like working at height.

**3. European Standards (EN)**

* **EN 363**: Personal Fall Protection Systems
	+ Specifies the components and design requirements of fall protection systems.
* **EN 365**: PPE Against Falls from Height
	+ Details general requirements for instructions, maintenance, and testing of fall protection equipment.
* **EN 795**: Anchor Devices for Fall Protection Equipment
	+ Defines the performance and testing requirements for anchor systems.

**4. National Standards**

* **BS 8454**: Code of Practice for the Delivery of Training and Education for Work at Height
	+ A British standard for ensuring workers are adequately trained for working at height.
* **ANSI/ASSP Z359.2**: Minimum Requirements for a Comprehensive Managed Fall Protection Program
	+ A U.S. standard for managing fall protection programs effectively.

#### **13.2 Additional Resources**

**1. Industry Best Practices Guides**

* **National Access and Scaffolding Confederation (NASC)**:
	+ Provides comprehensive guidance on safe use, erection, and dismantling of scaffolding.
	+ [NASC Official Website](https://www.nasc.org.uk)
* **Working at Height Safety Association (WAHSA)**:
	+ Offers best practices, training resources, and industry updates.

**2. Government Publications and Resources**

* **HSE (UK)**:
	+ "Working at Height: A Brief Guide" – Provides a concise overview of employer and worker responsibilities under UK regulations.
	+ [HSE Working at Height Resources](https://www.hse.gov.uk)
* **OSHA eTools**:
	+ Online tools and checklists for implementing fall protection and conducting hazard assessments.
	+ [OSHA Tools and Resources](https://www.osha.gov)

**3. Manufacturer Guidelines**

* Equipment manufacturers often provide detailed instructions and recommendations for using fall protection systems. Examples include:
	+ **3M Fall Protection Solutions**
	+ **Honeywell Safety Products**

**4. Training Resources**

* **Online Safety Training Platforms**:
	+ Platforms like **Safeopedia** and **iHASCO** provide online training courses tailored to working at height.
	+ [Safeopedia](https://www.safeopedia.com)
	+ [iHASCO](https://www.ihasco.co.uk)

**5. Research Papers and Case Studies**

* Access academic articles and case studies on fall prevention and height safety through databases like:
	+ **PubMed**
	+ **ScienceDirect**