**Standards of Practice**

Fall Protection

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**I. PURPOSE**

It is the standard of practice of this organization to permit only trained and authorized personnel to use fall protection equipment in accordance with the safety rules and guidance outlined in this program. This standard of practice is applicable to all employees involved in operations regarding the use of fall protection.

**II. SCOPE**

The supervisor shall utilize the General Industry Fall Protection Assessment Tool: <https://www.ksre.k-state.edu/agsafe/manuals_forms/General%20Industry%20Fall%20Protection%20Assessment%20Tool%20-%20Unprotected.docx> to ensure that fall hazards and control measures are identified. This standard practice is intended to address the issues of evaluating potential fall hazards, communicating information concerning these hazards and establishing appropriate protective measures for employees. Falls from any of these locations may occur while trying to gain access to items or places, climbing, traveling, or working at or on elevations greater than 4 feet. Once the fall hazard locations have been identified, the next step in the fall prevention process involves completing the Fall Protection Hazard Assessment and Plan: <https://www.ksre.k-state.edu/agsafe/manuals_forms/fall_protection_hazard_assessment_form_notre%20dame.docx>.This plan will be communicated to all affected employees for effective implementation.

**III. CONSEQUENCES OF DEVIATION**

This procedure serves as an essential element in identifying and managing risk to staff associated with falls. Ignoring this procedure could result in serious injuries, fatalities, or property damage.

**IV. RESPONSIBILITIES**

## Supervisors

* Ensure that the requirements of the Fall Protection Program are implemented.
* Ensure that all employees adhere to the requirements outlined in this program.
* Ensure employees receive the required training and are authorized to use fall protection equipment, as appropriate.
* Ensure that fall protection equipment is in good condition and is being inspected according to the manufacturer’s guidelines.
* Provide copies of all inspection and training records upon request.
* Coordinate training for authorized employees.
* Maintain written records of inspections and training.

## Employees

* Comply with the requirements in this program.
* Select the appropriate fall protection equipment for the task at hand.
* Inspect fall protection equipment prior to use.
* Attend required safety training.
* Report safety concerns to their Supervisor.

**V. PROCEDURES**

# Fall Hazards

Definition: A fall hazard is created when an activity exposes an employee to an unprotected fall from heights greater than four feet. Any fall could result in injury or death. It is important that employees take precautions to prevent falls from occurring.

# Fall Hazard Locations

To prevent fall hazards, it is necessary to recognize where falls are most likely to occur based on the information outlined in Fall Protection Assessment Tool. An activity involving the following equipment and/or work areas or those identified in the fall protection assessment tool requires increased fall hazard awareness and use of fall protection equipment:

* Ladders
* Elevated forklift work baskets
* Scissor lifts
* Aerial boom lifts
* Working on top of machinery and equipment (heights greater than 4 feet)
* Working around floor openings without perimeter protection
* Working on top of silos, tanks, towers, or roofs without perimeter protection
* Working from articulating equipment (Snorkel lifts)

# Fall Protection

Fall protection involves using personal fall protection equipment to prevent a fall and to reduce the possibility of resulting injuries. If engineering controls are not adequate or feasible, then the use of fall protection equipment is required.

# Fall-Arrest System

A fall-arrest system is used to stop an employee in a fall from an elevated working level. It consists of an anchor, connectors, a full-body harness, and may include a shock-absorbing lanyard, deceleration device, lifeline, self-locking snap hook, or suitable combinations of these. The use of a full-body harness system should be recognized as a means of minimizing injuries sustained from a fall. It does not prevent the fall. Prior to using a full-body harness system, the employee and/or supervisor must address such issues as:

* Has the employee been trained to recognize fall hazards and how to use fall-arrest systems properly?
* Are all components of the system compatible according to the manufacturer’s instructions?
* Have appropriate anchor points and attachment techniques been identified and reviewed?
* Has the free fall distance been evaluated so an employee will not strike a lower surface or object before the fall is stopped?
* Have swing fall hazards been eliminated?
* Have safe methods to retrieve fallen employees been planned?
* Has the full-body harness and all of its components been inspected both before each use and on a regular, semi-annual basis?
* Is any of the equipment, including lanyards, connectors, and lifelines, subject to such problems as welding damage, chemical corrosion, or sandblasting operations?

**Training**

A specialized online training program is provided by Mark Damon, Inc. “ACE Trained”. The supervisor is responsible to ensure the employee completes the appropriate training based on their specific duties as assigned. All courses comply with OSHA 1926.503, 1910.30 and ANSI Z359.2. For enrollment contact:

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Authorized Person: OSHA 1910.30 (a)(1) Before any employee is exposed to a fall hazard, the employer must provide training for each employee who uses personal fall protection systems. This class is designed for any Kansas State University employee who is required to wear fall protection equipment as part of their job. The employee using fall protection equipment must complete this class that meets or exceeds the requirements of OSHA and ANSI to be certified as an Authorized User. In addition to attending this class, the employee must meet with their Competent Person who will provide additional training in accordance with the OSHA standards outlined in 1926.503. The student who successfully completes the course and pass the written test will receive an Authorized User Certificate. Course Fee: $50.00 Class time is approximately 3 hours. Workbook included. Per ANSI Z359.2-2017 5.1.3.2 – Retraining must be completed every 2 years.

Competent Person: OSHA1926.503(a)(2) The employer shall assure that each employee has been trained, as necessary, by a competent person qualified in the correct procedures in their department for erecting, maintaining, disassembling, and inspecting the fall protection systems to be used; the use and operation of guardrail systems, personal fall arrest systems, safety net systems, warning line systems, safety monitoring systems, controlled access zones, and other protection to be used;1926.503(a)(2)(vi) the correct procedures for the handling and storage of equipment and materials and the erection of overhead protection; and 1926.503(a)(2)(vii) the role of employees in fall protection plans. This class is designed for any K-State employee assigned the responsibility for the fall protection program in their area. The employee serving as the competent person must complete the two-day class that meets or exceeds the requirements of OSHA and ANSI. Students who successfully complete the course and pass the written test will receive a Competent Person Certificate. Course Fee: $150.00 Class time is approximately 10 hours. Workbook included. Per ANSI Z359.2-2017 5.1.3.2 – Retraining must be completed every 2 years.

\*\*Authorized Person and Competent Equipment Inspector included in this course. Damon Inc. Fall Protection Training and Consulting Competent Person Recertification: In accordance with ANSI Z359.2 Competent Person training must be renewed every two years. Available to any participant who has already completed Competent Person certification is this recertification class. Please send documentation on your previous Competent Person certification. Students who successfully complete the course and pass the written test will receive their renewal Competent Person Certificate. Course Fee: $100.00 Class is approximately 6 hours. Workbook included. Per ANSI Z359.2-2017 5.1.3.2 – Retraining must be completed every 2 years. \*\*Authorized Person and Competent Equipment Inspector included in this course. All courses comply with OSHA 1926.503, 1910.30 and

Competent Equipment Inspector: The course is designated for individuals responsible for inspection of fall protection equipment. Successful completion of this course will give you the qualifications to properly inspect fall protection equipment and learn how to properly document inspections to comply with OSHA. Students who successfully complete the course and pass the written test will receive a Competent Equipment Inspector Certificate. Course Fee: $50.00 Class is approximately 1.5 hours. Workbook included. Per ANSI Z359.2-2017 5.1.3.2 – Retraining must be completed every 2 years

Once the employee has completed the appropriate course based on their assigned duties additional departmental training will be conducted by competent personnel. The program will include, but will not be limited to:

* A description of fall hazards in the workplace
* Procedures for using fall prevention and protection systems
* Equipment limitations
* The elements encompassed in total fall distance
* Prevention, control, and fall-arrest systems
* Inspection and storage procedures for the equipment

Generally, workers will be trained to recognize the hazards of falling from elevations and to avoid falls from grade level to lower levels through holes or openings in walking / working surfaces. Training programs will include prevention, control, and fall-arrest systems. It must be ensured that appropriate fall-arrest systems are installed and that employees know how to use them before beginning any work that requires fall protection.

Initial training- Training will be conducted prior to job assignment. Supervisors will provide training to ensure that the purpose, function, and proper use of fall protection equipment is under­stood by employees and that the knowledge and skills re­quired for the safe application and usage is acquired by employees. The training will include the following:

* Types of fall protection equipment appropriate for use.
* Recognition of applicable fall hazards associated with the work to be completed.
* Procedures for removal of fall protective devices from service for repair or replacement.
* Equipment maintenance and inspection requirements.
* Equipment strengths and limitations.

Refresher training- The refresher training will be identical to the initial training. Refresher training will be conducted if any affected employee who has already been trained does not have the understanding and skill required as follows.

* Retraining will be provided for all authorized and affected employees whenever (and prior to) a change in their job assignment, a change in the type of fall protection equipment used, or when a known hazard is added to the work environment which affects the Fall Protection Program.
* Additional retraining will also be conducted whenever a periodic inspection reveals, or whenever the supervisor has reason to believe that there are deviations from or inadequacies in the employee's knowledge or use of fall protection equipment or procedures.
* Whenever a fall protection procedure fails.
* The retraining will reestablish employee proficiency and introduce new or revised methods and procedures, as necessary.
* Retraining Certifications as a competent person, authorized user and equipment inspector will be completed every two years.

Certification – The supervisor will certify that employee training has been accomplished and is being kept up to date. The certification will contain each employee's name, the trainer’s name, and dates of training.

# Anchor Points

An anchorage is a secure point of attachment for lanyards, lifelines, or deceleration devices capable of withstanding the anticipated forces applied during a fall. Anchorage planning is the key to designing fall-arrest systems.

The anchorage point should be positioned on an independent structure and used for securing a lifeline or lanyard. An anchorage point should be located above the worker to avoid unnecessary swing in the event of a fall. The anchorage point should be capable of supporting 5,400 pounds minimum strength for fall protection systems, allowing free falls up to six feet. Alternatively, retracting lifelines permitting free falls of two feet or less require anchorage points capable of supporting only 3,000 pounds.

Examples of anchoring and non-anchoring points:

| **Anchoring Devices/Points** | **Nonanchorages** |
| --- | --- |
| * Structural Members
 | * Rungs
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| * Anchors/Fasteners
 | * Pipe Vents
 |
| * Eyebolts
 | * C-Clamps
 |
| * Imbeds
 | * Bolt holes
 |
| * Turnbuckles
 |  |
| * Shackles
 |  |
| * Slings
 |  |
| * Retractables
 |  |
| * Cross-arm straps
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# Inspection and Maintenance

To ensure that fall protection systems are ready and able to perform their required tasks, a program of inspection and maintenance will be implemented and maintained. The following, as a minimum, will comprise the basic requirements of the inspection and maintenance program:

* Equipment manufacturer’s instructions will be incorporated into the inspection and preventative maintenance procedures.
* All fall protection equipment will be inspected prior to each use and a documented inspection yearly by a competent person, in accordance with the manufacturer’s guidelines.
* The user will inspect his/her equipment prior to each use and check the inspection date.
* Any fall protection equipment subjected to a fall or impact load will be removed from service immediately and inspected by a qualified person (sent back to the manufacturer).
* Check all equipment for mold, damage, wear, mildew, or distortion.
* Hardware should be free of cracks, sharp edges.
* Ensure that no straps are cut, broken, torn, or scraped.
* Special situations such as electrical conductivity and chemical effects will be considered.
* Equipment that is damaged or in need of maintenance will be tagged as unusable and ***will not be stored*** in the same area as serviceable equipment.

Inspection forms are available below in this plan or you can refer this link: <https://www.ksre.k-state.edu/agsafe/manuals_forms/Fall%20Protection%20Inspections.pdf>. In addition, an inspection video guide can be accessed at: http[s://www.engineeredfallprotection.com/fall-protection-equipment-inspection](https://www.engineeredfallprotection.com/fall-protection-equipment-inspection).

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# Rescue Procedures

When personal fall arrest systems are used, the supervisor must ensure that employees can be promptly rescued or can rescue themselves should a fall occur. In the unlikely event that a fall arrest occurs on site, the following trained personnel will be contacted to assist in the rescue:

* Supervisor of the area or others
* Local Fire Department, if needed

There will always be a designated stand-by individual while an employee is climbing with a harness of 4 feet or more. The designated stand-by individual will assist as needed or call for help in an emergency, such as a fall.

The following rescue equipment is available to assist in the event of a rescue situation:

* Ladders
* Suspension Trauma Straps

Employees involved in a fall arrest or fall will be sent immediately for a medical evaluation to determine the extent of injuries, if any.

# Contractors

In addition to complying with the fall protection requirements that apply to all employees, each contractor who is retained to perform operations that require the use of fall protection will:

* Obtain any available information regarding fall hazards and protective measures from the Company.
* Coordinate fall protection operations with the Company when both company personnel and contractor personnel will be working in or near recognized fall hazard locations.
* Inform the Company of the Fall Protection Program that the contractor will follow and of any hazards confronted or created in conducting operations involving fall protection within the Company facilities through a debriefing immediately prior to the operation.

**Fall Protection Equipment Inspection Sheet**

Location of equipment: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Make: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date of Inspection\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Employee(s) performing the inspection\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Instructions: Check mark ☐ if inspected items meet the inspection criteria. If any of these items are not satisfactory, the equipment must be removed from service.

**Harness Inspection**

☐ **Webbing**: Grasp the webbing with your hands 6 inches apart. Bend the webbing in an inverted “U”. The surface tension resulting makes damaged fibers or cuts easier to detect. Follow this procedure for the entire length of the webbing, inspecting both sides of each strap. Look for frayed edges, broken fibers, pulled stiches, cuts, burns and chemical damage.

☐ **D-Rings**: Check D-rings for distortion, cracks, breaks, and rough or sharp edges. The D-ring should pivot freely.

☐ **Attachment of Buckles**: Inspect for any unusual wear, frayed, or cut fibers, or broken stitching of the buckle or D-ring attachments.

☐ **Tongue / Grommets:** The tongue receives heavy wear from repeated buckling and unbuckling. Inspect for loose, distorted, or broken grommets. Webbing should not have additional holes punched.

☐ **Tongue Buckles:** Buckle tongues should be free of distortion in shape and motion. They should overlap the buckle frame and move freely back and forth in their socket. Roller should turn freely on the frame. Check for distortion or sharp edges.

☐ **Friction and Mating Buckles:** Inspect the buckle for distortion. The outer bars and center bars must be straight. Pay special attention to corner and attachment point at the center bar.

**Lanyard Inspection**

When inspecting lanyards, begin at one end and work to the opposite end, slowly rotating the lanyard so that the entire circumference is checked.

☐ **Hardware**

a) Snaps: Inspect closely for hook and eye distortions, cracks, corrosion, or pitted surfaces. The keeper (latch) should seat into the nose without binding and should not be distorted or obstructed. The keeper spring should exert sufficient force to firmly close the keeper. Keeper locks must prevent the keeper from opening when the keeper closes.

b) Thimbles: The thimble must be firmly seated in the eye of the splice and the splice should have no loose or cut strands. The edges of the thimble must be free of sharp edges, distortion, or cracks.

☐ **Steel Lanyard**: While rotating the steel lanyard, watch for cuts, frayed areas, or unusual wearing patterns on the wire. Broken strands will separate from the body of the lanyard.

☐ **Web Lanyard:** While bending webbing over a pipe, observe each side of the webbed lanyard. This will reveal any cuts or breaks. Swelling, discoloration, cracks and charring are obvious signs of chemical or heat damage. Observe closely for any breaks in the stitching.

☐ **Rope Lanyard**: Rotation of the rope lanyard while inspecting from end-to-end for any fuzzy, worn, broken, or cut fibers. Weakened areas from extreme loads will appear as a noticeable change in original diameter. The rope diameter should be uniform throughout, following a short break-in period.

☐ **Shock Absorber Pack:** The outer portion of the pack should be examined for burn holes and tears. Stitching on areas where the pack is sewn to D-rings. Belts or lanyards should be examined for loose strands, rips, and deterioration.

☐ **Shock-Absorbing Lanyard**: Shock-absorbing lanyards should be examined as a web lanyard (described in Item 3 above). However, also look for the warning flag or signs of deployment. If the flag has been activated, remove this shock-absorbing lanyard from service.

Employee’s Signature \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**VI. TERMS AND DEFINITIONS**

* + - 1. **Anchor**—A secure point of attachment for lifelines, lanyards, or deceleration devices capable of withstanding the anticipated forces applied during a fall.
			2. **Body Support**—A harness consisting of single or multiple straps that are arranged and assembled for the purpose of providing body support both during and after a fall-arrest. The body support is designed to distribute arresting forces over the body (e.g., full-body harness).
			3. **Competent Person**—An individual knowledgeable about fall protection equipment and systems, including the manufacturer’s recommendations and instructions for the proper erection, use, inspection, and maintenance of it. This person is capable of identifying existing and potential fall hazards and has the authority to take prompt corrective action to eliminate those hazards.
			4. **Connecting Means**—A device, lanyard, or lifeline used to connect the body support to the anchorage in such a way as to provide protected movement during an elevated work task.
			5. **Fall-Arrest System**—Includes the proper anchorage, body support (harness), and connecting means (lanyards and lifelines) interconnected and rigged to arrest a free fall.
			6. **Fall Prevention**—Any means used to reasonably prevent exposure to an elevated fall hazard, either by eliminating work at elevation or by using aerial lifts, scaffolds, floors, guardrails, or isolating an area.
			7. **Fall Protection**—Involves using fall-arrest equipment and systems to minimize the effects of a fall once it has occurred.
			8. **Full-Body Harness**—A body support configured of connected straps to distribute a fall-arresting force over at least the thighs, shoulders, and pelvis. The harness provides a D-­ring for attaching a lanyard, lifeline, or deceleration devices.
			9. **Horizontal Lifeline**—Provides an attachment for the worker’s lanyard or other fall-arrest device to protect him or her while moving horizontally and to control dangerous swing falls. It may be a cable or wire rope that is installed horizontally and serves as an anchoring line rigged between two or more fixed anchorages on the same level. Horizontal lifelines must be positioned above a worker’s waist height, and all horizontal lifelines and their installation should be approved and supervised by a qualified person.
			10. **Lanyard**—The connecting means (rope, webbing) used to attach a harness to a lifeline or an anchorage point. Lanyards are usually two, four, or six-foot long and come with or without a shock-absorber.
			11. **Leading Edge**—The advancing edges of a floor, decking, or form work that changes location as additional sections are placed. Leading edges not actively under construction are considered to be “unprotected sides and edges,” and are appropriate methods of fall prevention required to protect exposed workers.
			12. **Qualified Person**—A person who by reason of education, experience or training is familiar with the operation to be performed and the hazards involved. The design of fall-arrest systems must be engineered by a qualified person.
			13. **Safety Monitor System**—A system used in conjunction with a warning-line system. A competent person is assigned, and his or her sole duty is to monitor the proximity of workers to fall hazards when working between the warning-line system and the unprotected sides and edges of a work surface.
			14. **Self-Retracting (Retractable) Lifeline**—A deceleration device that contains a drum-­wound line which may be slowly extracted from, or retracted onto, the drum under slight tension during normal employee movement, and which after onset of a fall, automatically locks the drum and arrests the fall. This device limits the fall to approximately 18 inches and is used during climbing operations or with horizontal lifeline systems.
			15. **Shock-Absorbing Lanyard**—A flexible line of webbing, cable, or rope used to secure a harness to a lifeline or anchorage point that has an integral shock absorber. The shock-absorbing effect minimizes the forces distributed to the employee and anchorage points.
			16. **Unprotected Sides and Edges**—Any side or edge of a form, deck, floor, or structure where there is no protection from a falling hazard.
			17. **Warning-Line System**—A barrier erected on the working surface to warn employees that they are approaching an unprotected fall hazard.

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