## 1. PURPOSE

To prevent serious injury by minimizing the risk of falls by applying the following hierarchy of controls:

a) Eliminate; b) Prevent; c) Control by restraint or fall arrest.

## 2. SCOPE

This policy applies to all Associated Asphalt employees, temporary workers or contractors working on behalf of the Company whose work exposes them to a fall from an elevated working surface 4 feet or greater above a lower level. Requirements for ladders, scaffolds and mobile lifts are excluded from this policy. These requirements will be addressed in a separate policy.

## 3. RESPONSIBILITY

**3.1 Control and Elimination of Work Place Hazards -** Associated Asphalt and all its subsidiaries have a responsibility to provide a work place free of all known and *potential* hazards including protecting employees exposed to fall and falling object hazards.

**3.2 Policy Implementation and Training -** The EHS Director is responsible for implementing and maintaining this policy. Terminal Managers or their designees, are responsible for training affected personnel to comply with this policy.

## 4. DEFINITIONS

**4.1** ***"Affected Personnel"*** – Any employee, permanent or temporary; or contractor working from an elevated surface 4 feet or more above a lower level.

**4.2** ***"Anchorage or Anchor Point"*** – A secure point of attachment for equipment such as lifelines, lanyards, or deceleration devices. Capable of supporting at least 5,000 pounds for each person attached or designed, installed & used under the supervision of a Qualified person.

**4.3** ***"Body Harness (Harness)"*** - Straps that secure the employee in a manner to distribute the fall arrest forces over at least the thighs, pelvis, waist, chest, and shoulders, with a means for attaching the harness to other components of a personal fall protection system.

**4.4** ***"Carabiner"*** - A connector generally comprised of a trapezoidal or oval shaped body with a closed gate or similar arrangement that may be opened to attach another object and, when released, automatically closes to retain the object. Capable of sustaining a minimum tensile load of 5,000 pounds and proof tested to a minimum of 3,600 pounds damage of any kind.

**4.5** ***"Company"*** – Associated Asphalt and all subsidiaries.

**4.6** ***"Competent Person"*** - A person who is capable of identifying existing and predictable hazards in any personal fall protection system and who has authorization to take prompt, corrective action to eliminate the identified hazards.

**4.7** ***"Connector"*** - A device used to couple (connect) parts of the fall protection system together. **(See section 4.4)**

**4.8** ***"Contractor"*** - Any person working at a company facility, who is not an Associated Asphalt employee.

**4.9** ***"D-Ring"*** - A connector used in a harness as an integral attachment element or fall arrest attachment; in a lanyard, energy absorber, lifeline, or anchorage connector as an integral connector; or in a positioning or travel restraint system as an attachment. . **(Also, see 4.4)**

**4.10** ***"Deceleration Device"*** – Any mechanism, such as automatic self-retracting lifelines/lanyards, or shock absorbing lanyards, that serves to dissipate energy during a fall.

**4.11** ***"Deceleration Distance"*** - The vertical distance a falling person travels from the point at which the deceleration device begins to operate, excluding lifeline elongation and free fall distance, until stopping.

**4.12** ***"Elevated Working Surface"*** – For the purpose of 29 CFR 1910.146 and this policy, means any surface on which a person or persons may stand to preform work that is 4 feet or more above a lower level.

**4.13** ***"Equivalent"*** - Alternative designs, equipment, materials or methods that the employer can demonstrate will provide an equal or greater degree of safety for employees compared to the designs, equipment, materials, or methods specified in the standard.

**4.14** ***"Free Fall"*** – The act of falling before the fall arrest system begins to apply force to arrest the fall.

**4.15** ***"Free Fall Distance"*** – Vertical distance a person falls just before the system begins to apply force to arrest the fall. Measured from the attachment point on the body harness. Includes deceleration device slide distance and/or the distance the self-retracting lanyard extends before fall arrest occurs.

**4.16** ***"Grab"*** - A deceleration device traveling on a lifeline or as part of a ladder climbing safety system that will automatically lock safely arresting a fall.

**4.17** ***"Ladder Safety System"*** – A system of components consisting of either rope or wire rope lifeline, or ridged channel permanently attached to a fixed vertical ladder, combined with a device that when properly connected to a harness, travels with the person ascending or descending the ladder. Should a fall occur the traveling grab device will lock, safely arresting and preventing the fall.

**4.18** ***"Lanyard"*** – A flexible line (rope, wire rope or strap), that generally has a connector at each end to attach to a harness, deceleration device lifeline or anchor point.

**4.19** ***"Lifeline"*** – Part of a personal fall protection system consisting of a flexible line that may be hung vertically by attaching to an anchor point at one end, or used horizontally by attaching both ends to separate anchor points. Other components of a PFP system may be connected to the lifeline.

**4.20** ***"Personal Fall Arrest System"*** – A system used to stop (arrest) a person in a fall from an elevated walking-working surface. Consisting of a harness, lanyard, anchor

point and connector. It may also include a deceleration device or a lifeline in any suitable combination.

**4.21** ***"Personal Fall Protection (PFP) System"*** – A system (including all components) used to provide protection from falling or safely arrest a person's fall if one occurs. Including Persona Fall Arrest Systems, Positioning Systems, and Travel Restraint Systems.

**4.22** ***"Qualified Person"*** - A person who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experience has successfully demonstrated the ability to solve or resolve problems relating to the subject matter, the work, or the project.

**4.23** ***"Safety Factor"*** – The ration of design load and the ultimate strength of the material.

**4.24** ***"Self-Retracting Lifeline/Lanyard"*** – A deceleration device containing a spring loaded drum-wound line under slight tension, which can be slowly extended and retracted during normal personnel movement. After the onset of a fall, it automatically locks and arrests the fall.

**4.25** ***"Snaphook"*** – A connector with a hook shaped body and a normally closed gate that must be manually opened to connect to an object. The gate automatically closes and locks when released. No other type of Snaphook is permitted to be used in a fall protection or arrest system.

**4.26** ***"Toeboard"*** – A low barrier designed to prevent materials, tools and equipment from falling to a lower level, creating a hazard to any person below. Usually between 4" and 6" high, of suitable material and installed around the bottom of an elevated work surface. Also used on platform lifts, articulated lifts and similar equipment used for access to elevated work areas.

**4.27** ***"Total Fall Distance"*** – The distance a person travels at the point when the fall is arrested. Calculated to prevent contact with a lower level.

**4.28** ***"Travel Restraint System"*** – A system that prevents personnel from reaching an unprotected edge where a fall is possible. These systems are not intended to support any portion of the user's weight while allowing the user to travel freely between the anchorages preventing the possibility of a fall. Capable of sustaining a tensile load of at least 5,000 pounds.

**4.29** ***"Walking-Working Surface"*** - Any horizontal or vertical surface on or through which an employee walks, works, or gains access to a work area or workplace location

## 5. FALL PROTECTION POLICY

**5.1 Hierarchy of Controls –** Fall protection is required when working at heights of 4 feet or greater above a lower level. **Sections 5.1.1 – 5.1.3** below present methods of fall protection. These methods must be used in the order that they are presented; 1) elimination, 2) prevention, and 3) control of a potential fall. PFP systems must be used only when elimination and prevention is not feasible.

**5.1.1 Eliminate Working from Heights –** Usually requires engineering and may be a longer term solution.

a. **Identify –** Tasks that include working at heights
b. **Plan –** To eliminate the necessity to work at heights or reduce the elevation to less than three feet above a lower level, by changing the work method if feasible. If not, is an engineering solution possible?
c. **Prepare –** An engineering scope and budget request for review.
d. **Use – <u>PREVENTION</u>** and **<u>CONTROL</u>** methods only when exposure to falls cannot be eliminated.

**5.1.2 Preventing Falls –** When working on an elevated working surface four feet or more above a lower level, the following steps must be taken to reduce the risk of falls.

a. **Guard Rails –** Every open sided elevated work surface and floor openings, 4 feet or more above a lower level shall be equipped with guard rails and toe boards.
   i. Guard rails shall be 42" high (+/- 3"), measured from the floor to the top of the rail, equipped with a mid-rail and posts of the same material as the rails.
   ii. Toeboards shall be installed along the floor and attached to the posts in a manner to prevent objects on the floor from falling to the lower level.
   iii. Guard rail system must be designed to withstand a minimum force of 200 pounds applied to within 2" of the top edge, in any outward or downward direction.
b. **Hole Covers –**Ensure each cover for a hole in a walking-working surface is capable of supporting at least twice the maximum intended load imposed on it at any one time and is secured to prevent displacement.
   i. Covers shall be used to prevent a person from falling through a hole 4 feet or more above a lower level; and
   ii. To prevent a person from stepping through or tripping into any hole less than four feet above a lower level.

**5.1.3 Control Fall Risk –** Using **<u>Travel Restraint</u>** or **<u>Personal Fall Arrest</u>** systems

a. **Travel Restraint** – A travel restraint system restricts the work envelope of a person, keeping them at a safe distance from the unprotected edge of an elevated work surface. It will consist of an anchor point, suitable connectors, a fixed length lanyard and a full body harness.
b. **Personal Fall Arrest System** – Will consist of an anchor point, deceleration device, (shock absorbing fixed length lanyard or self-retracting lanyard), and a full body harness. This system may restrict travel, providing protection from falling, although it is designed to safely arrest a person should a fall occur.

i. The shock absorbing feature is an integral part of specific models of fixed and self-retracting lanyards, designed to control the speed of the fall limiting the impact load felt by the person to a maximum of 1,800 pounds as the fall is arrested.
ii. The maximum deceleration distance to stop a fall completely shall be no more than 3.5 feet.
iii. The system shall be able to withstand twice the potential impact energy of a person free falling 6 feet while keeping the person within the system/strap configuration without making contact with the neck or chin area of the body.
iv. The use lanyards equipped with a shock-absorbing feature is required, whenever practical.
v. "Standard" equipment is rated for a total not to exceed weight of 310 pounds. Equipment is available rated for 400 pounds total.

**CAUTION:** **Using lanyards of any type without the shock-absorbing feature may result in excess impact load on the body as the fall is arrested. Care must be exercised when specifying personal fall arrest systems.**

**NOTE:** **Personal fall protection systems and all components must be used exclusively for fall protection. Any other use, such as hoisting or lifting materials is prohibited.**

5.2 **Standards for Fall Protection Systems -** Ensure that all components of personal f**all protection** systems meet the requirements listed in 29 CFR 1910.140(c). All components of personal **fall arrest** systems shall meet the requirements of 29 CFR 1910.140(d). These standards are provided in Appendix A. **Positioning** systems shall not be used by Associated Asphalt employees.

**NOTE:** **Personal fall arrest systems that meet the criteria and protocols in Appendix D Appendix D of Subpart I, 1910.140, (SEE Appendix A of this policy), and are used by persons having a total combined weight of less than 310 pounds, are considered to be in compliance with the provisions of 1910.140(d)(1)(i) thru 1910.140(d)(1)(iii)**

5.3 **Personal Fall Arrest Equipment –** Selection of equipment must consider these factors to ensure a safe outcome should a fall occur. Upon initial issue, the brand, model, serial number and name of the person to whom issued will be documented. Consult the EHS Department before ordering and fall protection equipment.
a. Ensure the grab device used to connect to a horizontal lifeline will lock in both directions if subjected to a fall and the lifeline becomes vertical.
b. The equipment must be assembled to limit a free fall to no more than 6 feet.

**c.** Total weight of the user, including special clothing, PPE, tools and any other objects held or attached to the person at the onset of the fall.
**d.** Height of the work surface above the lower level.
**e.** Anchor point location – overhead, waist high, or below the waist.

**NOTE:** **The anchor point is an essential part of any fall arrest system. Acceptable anchor points must be capable of holding 5000 pounds!**

**f.** Height of the person.
**g.** Harness slippage, fixed lanyard length and deceleration distance, (shock absorber length when deployed, extension length for self-retracting lanyard before drum lock up). The maximum deceleration distance to bring a person to a complete stop shall be limited to 3.5 feet.
**h.** Safety factor distance usually adds 2' to the total fall distance.
**i.** Any pendulum effect – swing fall hazard. Potential of striking fixed objects while swinging suspended from the arrest equipment.

**NOTE:** **Personal fall arrest system used by individuals with a combined weight of 310 pounds or more and appropriate modifications to the criteria and protocols in Appendix D of 29 CFR 1910.140, (SEE Appendix A of this policy), will be deemed to be in compliance with the requirements of this Standard.**

**5.4 Inspection –** Each work shift, inspect before initial use, for mildew, wear, cuts, abrasion and any other damage or deterioration. Immediately remove from service and replace any component that shows signs of excessive wear, damage, distortion, or has been subject to impact. These systems must be inspected annually as well, by a competent person. Annual inspections must be documented.

**5.5 Trucks and Rail Cars –**When climbing on rail cars, workers will use fall arrest systems at all heights above 4 feet.

## 6.0 RESCUE AFTER A FALL

**NOTE:** **All harnesses currently issued to Company personnel are equipped with stirrups that can be easily deployed and used to reduce the pressure of the leg straps, increasing blood flow.**

**6.1 Rescue from suspension -** To prevent potential life threatening injury, a person suspended in a harness must be supported within 20 minutes. Using the stirrups will extend the time for self-support. However, the rescue should be designed to take no more than one hour without providing independent support until removal can be accomplished. A documented site specific rescue plan must be developed

considering all of the varied elevated working surfaces where a fall protection or fall arrest system is required to safely perform any potential tasks.

**6.2 Rescue plan** – The following considerations are required for a comprehensive plan.

**a. Survey** and list all elevated working surfaces, greater than four feet above a lower level.

**b. Determine** how these areas would be accessed to be able to safely remove a suspended person.

**c. Also Determine** if appropriate equipment, such as ladders, lifts, an baskets are on site.

**d. Ensure** that trained and qualified individuals are on site at all times during tasks preformed from elevated working surfaces.

**e. Plan** for estimated response times if equipment or outside rescue teams must be brought in.

**f. Identify** the contractor and/or EMS contact information necessary to call for help.

**g. Assign** a person to meet and direct help to the scene.

**h. Follow-up** after the event. Debrief, review, and adjust as needed.

**i. Hold** a table top exercise at least annually, practicing a different scenario each year. Document the results

## 7.0 TRAINING

**7.1** ***EACH*** person involved in work on elevated surfaces, requiring the use of fall protection or fall arrest systems, and those who would be part of a rescue effort, must be trained in the rescue plan and on any equipment that may be used by them to effect a rescue.

**a. At** a minimum training must also include the use of all components of fall protection and fall arrest systems.

**b. Proper** donning of a full body harness.

**c. Inspections** the components of these systems.

**d. What** to do if defects or damage is discovered.

**e. In** event of a fall and ensuing rescue, how to implement the rescue plan, including who to notify and when.

## 8.0 AUDITS – Annually, a task requiring the use of a fall protection or fall arrest system.

**8.1 Exercise –** Annually, complete a table top exercise of the rescue plan using s different scenario each year.

**8.2 Periodically** – Conduct a deployment exercise including a simulated suspended rescue..

## 9.0 REFRENCE

**9.1** Regulatory references

OSHA 29 CFR 1910.28 Duty to have fall protection & falling object protection

OSHA 29 CFR 1920.29 Fall protection systems & falling object protection-criteria & practices

OSHA 29 CFR 1910.140 Personal fall protection systems

**APPENDICES**

Appendix A – 29 CFR 1910.140, Subpart I, Appendix D

Appendix A to Fall Protection - Append