1. General Requirements (OSHA References: OSHA 29 CFR 1926.503)

1.1 Elkhorn Construction, Inc. employee-owners and subcontractors are required to use fall protection equipment or systems when an assessment of the hazard indicates that a person could fall six (6) or more feet. This program identifies when fall protection is required and provides requirements for fall protection systems.

1.2 Fall protection is required whenever employee-owners or subcontractors are potentially exposed to falls from heights of six (6) feet or greater to lower levels. This includes work near and around excavations. Guard rails, safety nets, or personal or fall arrest systems are some examples of standard fall protection systems. When the standard methods of protection are not feasible or a greater hazard would be created the exposure determination shall be made without regards to the use of PPE. Elkhorn Construction, Inc. shall discuss the extent to which scaffolds, ladders or vehicle mounted work platforms can be used.

1.3 It is the project supervisor’s responsibility to ensure that the appropriate fall protection system is being used, and the employee-owners are properly trained and certified in the use of the appropriate fall protection system. Employee owners shall be retrained any time the job has specified hazards or the fall protection system changes. Each individual has the responsibility to recognize fall hazards and take preventative measures.

1.4 A qualified person will develop a fall protection plan for each specific project. Subcontractors are required to follow these fall protection requirements.

1.5 Fall protection needs shall be included in the design and construction of new and remodeled facilities.

1.6 Engineering must be consulted for designing or verifying anchor points horizontal lifelines, and for assuring lifeline systems standards are adequate to handle all fall arresting loads.

2. Definitions

2.1 Personal Fall Arrest System (PFAS): A system used to arrest an employee-owner in a fall from a working level. It consists of an anchorage, connectors, and full body harness and may include a lanyard, deceleration device, lifeline, or combination of these items.

2.2 Safety Harness: The part of fall protection equipment that supports the body in the event of a fall. The full body harness type must be used for fall protection purposes. Safety belts should not be used as fall arrest equipment.
2.3 Lanyard: A flexible line of rope made from synthetic fibers having connectors at each end for connecting the body harness to a deceleration device, lifeline, or anchorage. The lanyard shall not be attached by means of knots or loops. The lanyard shall have a double latch self-locking snap hook at each end for connecting the body harness to a lifeline or anchor point. Some lanyards may have a built-in deceleration device. A shock-absorbing lanyard is recommended because it imposes the minimum force to the body in the event of a fall. The manufacturer must design lanyards for fall arresting purposes. Only commercially manufactured lanyards shall be used. The lanyard must be capable of supporting a 5,000-pound static load.

2.4 Deceleration Device: Any mechanism such as a rope grab, self-retracting lifeline, or shock absorbing lanyard which serves to dissipate the force of the fall which would otherwise be imposed on the employee-owner.

2.5 Anchor Point: A secure point of attachment of lifelines, lanyards or deceleration devices. Anchor points must be capable of supporting a static load of 5,000 pounds per person attached.

2.6 Working Height: The distance from the worker’s footing to the next lower working level or surface to which an employee-owner can fall.

2.7 Lifeline: A vertical line from a fixed anchorage or between two horizontal anchorage’s, independent of walking or working surfaces, to which a lanyard or fall arresting device is secured.

2.8 Competent Trainer: A competent trainer is someone who has specialized knowledge of fall protection that includes: hazard recognition, proper use and care of fall equipment, inspection practices, content of the applicable OSHA standards and content of the program on fall protection. This person is able to conduct training classes and prepare a written certification record.

2.9 Competent Person: An individual knowledgeable of manufacturer’s recommendations, instructions and manufactured components who is capable of identifying existing and predictable hazards, and trained in the proper selection, use and maintenance of fall protection. This person may conduct PFAS inspections beyond the “before use” check.

2.10 Deceleration Distance: The vertical distance between the harness attachment point at the activation of the fall arrest equipment and that attachment point once the individual comes to a complete stop.

2.11 Controlled Access Zone: An area designated and clearly marked in which leading edge work may take place without the use of guardrail, safety net or personal fall arrest system to protect the employee-owners in the area. This may be accomplished by establishing a safety monitoring system.
2.12 Safety Monitoring System: A fall protection system in which a competent person is responsible for recognizing and warning employee-owners of fall hazards while they are working on unprotected areas.

3. Fall Protection System:

3.1 Examples where fall protection is required include, but are not limited to the following:

3.1.1 Man-baskets.
3.1.2 Ladders when used as working platforms.
3.1.3 Incomplete structural steel.
3.1.4 Elevated piping or pipe racks (A horizontal lifeline system is recommended for elevated pipe racks).
3.1.5 Opened tower tray key ways (where more than six (6) foot continuous drop, and a fall hazard exists).
3.1.6 Tank roof without OSHA guardrail system (regardless of work location).
3.1.7 Open access ways for hoist area.
3.1.8 Building roofs (such as compressor and process buildings, etc.) without a 42” continuous parapet wall.
3.1.9 Unprotected roofs of cooling towers or cooling fan structures.
3.1.10 Basket on bucket truck.

3.2 Personnel Fall Arrest Systems are not required when working in these situations:

3.2.1 OSHA approved scaffolds (completed only and when working inside the guardrail system).
3.2.2 Roofs with a 42” high, continuous parapet, or standard guardrail system).
3.2.3 Stairways with standard railings.
3.2.4 Caged ladders.
3.2.5 Portable or scaffold ladders (only when used for access).
3.2.6 Elevated walkways protected by guardrails.

3.3 When a PFAS is used, these systems must be tied-off properly to anchorage points, which are capable of supporting a static load of 5,000 pounds per person attached. Appendix I contains engineering guidance for anchor points on loaded WF (Wide flange) beams and pipe with or without pressure, and a summary of guidelines for allowable fall protection anchor points. If other configurations of points for anchorage are used, the adequacy of those points must be confirmed by Engineering.
3.4 Anchorage used for the attachment of personal fall protection equipment shall be independent of any anchorage being used to support or suspend platforms. Only in rare situation where no such independent anchorage is possible, tying off the platform may be necessary. For example, when utilizing a suspended personnel manbasket the PFAS anchorage point must not be the platform itself. All PFAS equipment shall be connected and used in accordance with manufacturer’s specifications and instructions.

3.5 Personal fall arrest systems shall be rigged to limit free fall distance to six (6) feet or less. The deceleration distance must be limited to three point five (3.5) feet and the personal fall protection system must allow for an unobstructed fall. In addition, the system shall be rigged to limit a swing fall hazard.

3.6 Open hoist areas must be protected by guardrails. When a portion of the guardrail is removed for hoisting, employee-owners involved must wear fall arrest systems.

3.7 A controlled access zone will be monitored by a competent person, who will recognize fall hazards, be on the same working surface and in visual and voice contact, staying close enough for oral communication. Where no other alternate methods have been implemented, a safety monitoring system shall be implemented. Warn employee-owners if they are unaware of fall hazards or are acting un-safely. The competent person shall not have other assignments that would take their attention away from monitoring the access zone.

3.8 All accidents and serious incidents regardless of their nature shall be reported and investigated. It is an integral part of any safety program that documentation take place as soon as possible so that the cause and means of prevention can be identified to prevent a reoccurrence. In the event that an employee-owner falls or there is some other related serious incident this plan shall be revised to determine if additional practices, procedures or training need to be implemented to prevent similar types of falls or incidents from occurring.

4. Fall Arrest System Equipment

4.1 All safety harnesses, lanyards, snap hooks and other PFAS equipment must meet the material and assembly specifications, and testing requirements set forth in ASTM, ANSI A-10.14 and OSHA 29 CFR 1926.502. Only approved fall protection devices may be used by personnel and must be worn as designated and as intended by the manufacturer. The key provisions are:

4.1.1 Connectors (Dee-rings and snapooks) shall have been proof-tested to 3,600 pounds, and have a minimum tensile strength of 5,000 pounds.

4.1.2 Only locking type snaphooks shall be used.
4.1.3 Lanyards must have a minimum breaking strength of 5,000 pounds, and be constructed only from synthetic fibers.

4.1.4 The attachment point on the body harness (Dee-ring) shall be located in the center of the wearer’s back near shoulder level, or above the wearer’s head.

4.2 Each employee-owner must visually inspect the personal fall arrest system components prior to each use for wear, damage and other deterioration. Defective PFAS components must be immediately removed from service, and identified as “out of service”.

4.3 Personal fall protection systems and components which have been subjected to impact from arresting of an employee-owner’s fall shall be immediately removed from service, and identified as “out of service”.

5. Emergency Procedures

5.1 Rescue of fallen employee-owners, who are incapable of self-rescue, shall be done using established rescue plans and procedures.

6. Training

5.2 Document all training on the Record of Training and Meeting Form 3E-0220.

5.3 Additional training materials can be obtained from a Service District library and Safety Director.

7. Testing and Certification

7.1 Project Supervisor shall ensure that all testing is done in an ethical manner.

7.2 A written test shall be handed out after training material has been presented. The test is a closed book test.

7.3 All tests will be true or false with circles to be filled in for the correct answer. Each test will consist of 15 questions.

7.4 The test must be graded with a total of 12 questions answered correctly for a passing score.

7.5 Any trainee who completes the test, missing more than three questions will be required to review the training material and re-test.

7.6 The instructor can present the test questions orally, one on one, with a trainee when necessary.

7.7 The instructor shall complete the Record of Training and Meeting Form, 3E-0220, for only those trainees who pass the test. The Record of Training Form shall be
forwarded to the corporate payroll department. Written tests shall be confidentially disposed of in the field.

APPENDIX A - Guidelines for allowable Fall Protection Anchor Points

A.1 These notes apply to documents entitled “Guidelines for Allowable Fall Protection Anchor Points-Pipe (1 Page), -Loaded WF Beams (1 Page)

- Table values must meet or exceed field anchor span length and dimensions.
- I-Beams and process/utility piping (and their support structures) which are used as anchor points must be in good condition.
- Table values are based on a maximum of six- (6) foot employee-owner free fall, using a maximum of six- (6) foot long lanyard with a stitched decelerator and a full body harness.
- Piping flanges should not be in the pipe section where the anchorage point occurs, and up to and including the first pipe stanchion on either side of the anchor point.
- Piping process temperature should be equal or no greater than 400 degrees Fahrenheit but not less than minus 20 degrees Fahrenheit.
- Branch piping may be used as an anchor as long as both ends of main piping run and piping branch are supported; branch piping diameter must meet table requirements using span measurement from the main piping branch to the branch pipe support.
- If any of the above (items 1-6) conditions are not met, an engineer and/or other knowledgeable person should be contacted for further evaluation and potential approval for use as an anchor point.
- Anchor piping is assumed to be at the minimum allowable thickness and to have the tie-off point at mid span; anchorage beams (for the “LOADED” case) are assumed to be fully loaded pipe support.
- Adequate structural steel members should always be used before choosing process/utility piping as anchorage points UNLESS the use of a structural member as an anchor should result in a greater hazard posed by swing falls or if there are no other acceptable fall protection methods available.
- If a fall arrest has occurred, Engineering shall be contacted to inspect the anchorage pipe or beam to assess condition and determine corrective action.
Whenever possible, use anchor points and tie-off methods which minimizes the free fall distance to less than six (6) feet while still performing the work safely. The shorter free fall distances significantly reduce the fall arrest force applied to you and your anchor.

Never use guard/hand rails; C clamps; electrical equipment or conduits; cable trays; cast iron, riveted, plastic, or screwed piping; bolt, pipe, pipe support, or I-beam ends for anchorage points; or welded pipe hangers or piping section supported by pipe hangers.
APPENDIX B

Guidelines for Allowable Fall Protection
Anchor Points – Loaded WF Beam

<table>
<thead>
<tr>
<th># of Workers</th>
<th>PIPE SPAN</th>
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<tbody>
<tr>
<td></td>
<td>10’</td>
</tr>
<tr>
<td>1</td>
<td>Beam</td>
</tr>
<tr>
<td></td>
<td>Beam</td>
</tr>
<tr>
<td>1 or 2</td>
<td>Beam</td>
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<tr>
<td></td>
<td>Beam</td>
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<tr>
<td>1, 2, or 3</td>
<td>Beam</td>
</tr>
<tr>
<td></td>
<td>Beam</td>
</tr>
</tbody>
</table>

Notes:
1. Beams used must meet minimums listed for beam depth and width.
2. Beams must be in good condition.
3. If beams are fireproofed, user must verify that beams are in good condition & meet minimums listed.
4. See attached “Guidelines for Allowable Fall Protection and Anchor Points” dated 1/9/95 for additional information.
APPENDIX C

Guidelines for Allowable Fall Protection
Anchor Points – Pipe With or Without Pressure

<table>
<thead>
<tr>
<th># of Workers</th>
<th>PIPE SPAN</th>
</tr>
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<td></td>
<td>10’</td>
</tr>
<tr>
<td>1</td>
<td>6”</td>
</tr>
<tr>
<td>1 or 2</td>
<td>6”</td>
</tr>
<tr>
<td>1, 2, or 3</td>
<td>6”</td>
</tr>
</tbody>
</table>

Notes:
1. Pipe must meet minimum diameter shown. (Minimum NPS diameter)
2. Pipe must be in good condition.
3. Pipe temperature is ≤400°F
4. See attached “Guidelines for Allowable Fall Protection Anchor Points”, dated 1/9/95 for additional information.
Test

True or False

1. Personal fall-arrest systems have an anchor, a body belt or harness and parts that connect the worker to the anchor.

2. A positioning device catches the worker after a fall.

3. A ladder safety device is one example of a positioning device.

4. Many types of fall-arrest equipment have braking systems to prevent injury from the fall-arrest force.

5. Any positioning strap can be used as a lanyard in a fall-arrest system.

6. Certain working conditions, such as the presence of acid, dirt or changes in weather, can weaken fall-protection equipment.

7. The anchor for a fall-arrest system must be strong and have no obstacles below it that a worker could fall into.

8. The longest free-fall distance allowed is ten feet.

9. One way of limiting free fall is to raise your tie-off point to the anchor or lifeline.

10. No more than three people are allowed to hook up to a single vertical lifeline.

11. You can safely connect any snap hook directly to a horizontal lifeline.

12. A body harness must be connected in the center of your back, on or behind your hips.

13. After a co-worker falls, the first thing you should do is learn how to use the rescue equipment.

14. All fall-protection equipment must be inspected before each use.

15. During a rescue, you should provide fall protection for the victim and his rescuers.

Print Name ___________________________ Date ___________________________
Test Key

True or False

1. Personal fall-arrest systems have an anchor, a body belt or harness and parts that connect the worker to the anchor.

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