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Section # 25

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Revision: 2

FALL PROTECTION / FALL ARREST SYSTEMS

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SUBPART A - PURPOSE

Slips, trips, and falls constitute the majority of general industry accidents. They cause 15% of all accidental deaths, and are second only to motor vehicles as a cause of fatalities. Active participation by Berry Bros.' management, supervisors and employees is necessary to prevent hazardous conditions that could result in slips, trips or falls.

All Berry Bros.' employees shall be trained to recognize exposure to fall hazards. Training shall enable each employee to recognize the hazards of falling and shall train in the procedures to minimize these hazards.

The purpose of this procedure is to provide a standard and guidance to ensure the safety of all personnel who have elevated work task assignments. Furthermore, this procedure complies with all federal and state laws governing the use of fall restraint devices. This program shall be administered through the HS&E Department. The HS&E / Risk Management Director shall have the ultimate responsibility to implement or change this procedure. It shall be the responsibility of each job site supervisor / foreman or safety representative to see to it that this procedure is implemented.

SUBPART B - SCOPE

Berry Bros. deems that fall protection is required whenever employees are potentially exposed to falls from heights of 6 feet or greater to lower levels. In



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addition, when required by the job or clients, 100% fall protection will be utilized. This includes work near and around excavations, deck openings, lower levels of offshore production platforms, and the like. Use of guard rails (Do not lean on them); safety nets, or personal fall arrest systems should be used. 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.

SUBPART C - DEFINITIONS

- Anchorage a secure point of attachment for lifelines, lanyards or deceleration devices. A fixed anchorage is capable of supporting a minimum dead-weight of 5000 pounds.
- 2. **Elevated work -** Work performed in an elevated area where the worker could potentially fall 6 feet or more.
- Body Harness A design of straps secured about the wearer in a fashion to distribute stopping forces equally over the body. This belt has provisions for attaching a lanyard in the back between chest and shoulder level.
- 4. **Fall Restraint System -** This type of system prevents employees from reaching out far enough over the edge of a walking-working surface that exposes them to a fall 6 feet or greater.
- 5. **Guardrail -** A barrier erected to prevent employees from falling to lower levels.
- 6. **Lanyard -** A flexible line of rope, wire rope, or strap which generally has a connector on each end for connecting the body harness to a deceleration device, lifeline, or anchorage.
- 7. **Lifeline** A component consisting of a flexible line for connecting to an anchorage at one end to hang vertically (vertical lifeline), or for connecting to an anchorage at both ends to stretch horizontally (horizontal lifeline), and which serves as a means for connecting other components of a personal fall arrest system to the anchorage.
- 8. **Motion Stopping Safety System -** A barrier or restraining device used to prevent a person from falling off the edge of a roof or work platform.



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- 9. **Personal Fall Arrest System -** A system used to arrest an employee in a fall from a working level. It consists of an anchorage, connectors, and body harness and may include a lanyard, deceleration device, lifeline, or suitable combination of these.
- 10. **Safety Nets -** Manufactured from 3/8 inch diameter polypropylene mesh rope with openings from 4 inch to 6 inches. Use a safety net where safety belts and lifelines are impractical.
- 11. **Self-Retracting Devices** A deceleration device containing a drum wound line which can 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.
- 12. **Snap hook -** A connector comprised of a self-closing, self-locking, hook shaped keeper which remains closed and locked until unlocked and pressed open for connection or disconnection.
- 13. **Warning Line -** A rope, wire or chain with supporting stanchion used to warn workers that they are approaching the edge of a roof, platform, etc.
- 14. **Restraint System -** Consists of a body belt or harness, lanyard and anchor. The system is arranged with a shortened lanyard to eliminate the possibility of an employee going over the edge of a walking-working surface.
- 15. **Rope Grab** A deceleration device which travels on a lifeline and automatically by friction, engages the lifeline and locks as to arrest the fall.

SUBPART D - TRAINING

 BBGCI shall provide a training program for each employee who might be exposed to fall hazards. The program shall enable each employee to recognize the hazards of falling and shall train each employee in the procedures to be



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followed in order to minimize these hazards. Training shall be provided to all employees upon initial assignment.

- 2. Retraining- When the employer has reason to believe that any affected employee who has already been trained does not have the understanding and skill required, the employer shall retrain each such employee. Circumstances where retraining is required_include, but are not limited to, situations where:
 - ✓ Changes in the workplace render previous training obsolete
 - ✓ Changes in the types of fall protection systems or equipment to be used render previous training obsolete
 - ✓ Inadequacies in an affected employee's knowledge or use of fall protection systems or equipment indicate that the employee has not retained the requisite understanding or skill.

SUBPART E - COMPETENT PERSON

Individual fall protection execution plans shall be written, maintained, and implemented by a qualified person. This person shall be the jobsite supervisor. He/she shall have adequate training along with completing a competency test to fulfill this requirement. All jobsites shall have a competent person assigned to evaluate and help ensure our safety plan is carried out. He/she shall be able to recognize fall hazards, warn employees of fall hazards present or if they are acting in an unsafe manner.

SUBPART F - INSPECTION

All components of the fall arrest system shall be inspected for defects by the employee and / or supervisor prior to issue and use. Any suspect condition shall render the equipment useless and tagged "Do Not Use" until repairs can be made or replacement or parts. Discuss (see attached Inspection form) inspection shall be performed by the jobsite supervisor and / or employee. Such inspection at a minimum shall consist of:

Harness Stitching <u>Lanyard</u> Frayed strands



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Rivets Broken strands

Buckles Rot "D" rings Burns Rust or abrasions Corrosion

Burns

General appearance

General Appearance

Self-Retracting Devices shall be inspected by the authorized person before each use. Additionally, inspections shall be conducted by a competent person other than the user on a yearly basis. Below are the Inspection Requirements for SRD's based on the frequency of use.

> ANSI/ASSE Z359.14-2012 American National Standard Safety Requirements for Self-Retracting Devices for Personal Fall Arrest and Rescue Systems

Appendix A: Inspection Requirements

Type Of Use	Application Examples	Conditions Of Use	Inspection Frequency Competent Person	Factory Authorized Inspection
Infrequent to Light	Rescue and con- fined space, fac- tory maintenance	Good storage con- ditions, indoor or infrequent outdoor use, room tempera- ture, clean environ- ments	Annually	At least every 2-5 years, but not longer than inter- vals required by the manufacturer
Moderate to Heavy	Transportation, residential con- struction, utilities, warehouse	Fair storage condi- tions, indoor and extended outdoor use, all tempera- tures, clean or dusty environments	Semi-annually to annually	At least every 1-2 years, but not longer than inter- vals required by the manufacturer
Severe to Con- tinuous	Commercial construction, oil and gas, mining	Harsh storage conditions, pro- longed or continu- ous outdoor use, all temperatures, dirty environment	Quarterly to semi-annually	At least annually, but not longer than intervals required by the manufacturer

Note: Turn in any fall protection devices found to be defective and/or that has been subjected to the force of a fall immediately for the purchase or order of a new one.

SUBPART G- PROPER USE

General Guidelines:

1. Any employee working 6 feet or higher above ground, floor, or deck shall wear a safety harness and shall be rigged so that the employee can neither free-fall more than 6 feet and not contact any lower level.



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- a. Note: When a <u>stationary</u> elevated work platform or work area has totally enclosed standard handrails on all its open sides a safety harness is not required to be tied off.
- 2. Use a safety harness and lanyard or other equipment specified by this procedure when performing elevated work in areas more than 6 feet above a lower level of adjacent surface where a fall potential exist.
- 3. Vertical lifelines are limited to one person per lifeline.
- 4. While working from suspended scaffolds, (ex: spider climbers) a safety harness will be worn with a lanyard constantly attached to an independent anchorage.
- 5. Wear a safety harness attached to a ladder climbing device when ascending or descending a vertical fixed ladder that is 30 feet or longer in continuous length.
- 6. Use only personal fall protection equipment that has been inspected daily and documented at least periodically.
- 7. Secure and adjust all lanyards, drop lines and lifelines to prevent a free fall of 6 feet or less.
 - a. Fixed anchorage points shall be at least 4 inches or larger.
- 8. Do not use extreme cold temperature service piping as a fixed anchorage.
- 9. Use largest structural member or pipe that will allow the work to be done safely in process areas.
 - a. Attach the lanyard as close to a structural member as possible.
- 10. Safety harnesses shall be worn with the "D" ring located in the center of the upper back between the shoulder blades for fall arresting.
- 11. Visually inspect all personal fall protection equipment prior to each use.
- 12. Do not use personal fall protection equipment which has been or suspected to have been subjected to a falling load.
- 13. Fastening devices shall be self-closing, self-locking, to prevent accidental opening.



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14. Subcontractors shall comply with the requirements set forth in this program as their minimum requirements.

Purchasing

Any materials purchased and utilized for fall protection shall meet applicable ANSI and ASTM requirements. In addition, it is imperative that equipment is compatible. Mismatching brands and connecting mechanisms may cause rollout. The use of a double action auto-locking carabineer minimizes the likelihood of rollout and whenever possible the use of a double action auto-locking carabineer will be used.

SUBPART H – TYPES OF FALL PROTECTION

Guardrail Systems (Primary Fall Protection)

- These devices shall be provided whenever feasible. These systems provide a
 work area that is free of floor openings and is equipped with standard guardrails
 on all open sides. Examples of these systems may include: pencil boards,
 scaffolds, and aerial lifts.
- Guardrail systems may be of standard 2 X 4's or equivalent. The top rail should be at approximately 42 inches high and the mid-rail at approximately 21 inches above the walking surface with a standard toe board. Upright post spacing shall be no more than 8 feet. The guardrail shall be able to support a minimum of 200 pounds outward or downward with minimum deflection.
- All floor opening must be covered as soon a possible and marked "Do Not Remove" with safety orange spray paint.

Body Harness - Lanyard Systems

These systems shall be used whenever there is an absence of primary fall protection.

- All lanyards shall be equipped with shock absorbers.
- All snap hooks shall be double locking to prevent accidental role out.
- The lanyard must be attached to a "D" ring located in the center of the upper back when utilized for fall protection.
- Only those body harness / lanyards provided by **BBGCI** shall be used.



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Self-retracting Devices

These devices perform a tethering function while allowing vertical movement to the maximum working length of the device, which will arrest a user's fall. The retraction end of the lifeline will unwind from drum under slight tension during the normal movement of the user below the device. When tension is removed the drum will automatically retract the lifeline. Any quick movement such as that of a fall will lock the drum, arresting the user's motion. This device is designed to arrest a person falling while minimizing fall distance and impact force.

- When available, this type of Fall Protection is to be the primary device used in all BBGCI operations that involve working above 6 feet, unless another fall protection system is more applicable.
- All Self Retracting Devices (SRDs) are to be inspected prior to use
- Only those SRDs provided by BBGCI shall be used.
- If an SRD has been subjected to the force of a fall it must be retired from service.

Fall Restraint systems

In a situation where an employee's movement should be restricted to <u>prevent</u> the risk of falling to a lower level, a Fall Restraint System must be utilized. Any Employee that is working in an Aerial lift must wear an approved body harness tethered to the Guardrail system using a shortened Lanyard to prevent the employee from being bounced out of the machine and falling.

Lifelines (Vertical)

- Vertical lifelines are required whenever men are working out of a spider climber, or two point suspended scaffold. Also may be used in situations regarding the erection or dismantling of scaffolds.
- May be composed of 3/4 inch manila rope or 3/8 inch cable equipped with a rope grab or they can consist of a self-retracting reel type lifelines and capable of supporting 5,000 pounds.

Note: Rope grabs shall only be used for the size rope you are using and rope grab must be positioned at least shoulder level at all times.



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Lifelines (Horizontal)

- Horizontal lifelines shall be installed by personnel familiar with that operation.
- All horizontal lifelines shall be made of at least 3/8 inch wire rope cable capable of supporting 5,000 pounds per employee attached.
- All horizontal lifelines shall be positioned at least waist high level.
- Horizontal lifelines shall be secured by a minimum of two cable clamps and tight enough to provide minimum deflection.
- Softeners shall be used where contact with sharp edges exist.

Note: All lifelines shall be used for fall protection purposes only.

Aerial Lifts

- Fall Restraint Systems must be used by employees that are working/operating inside an Aerial Lift.
- Lifts shall be used only on solid and level surfaces.

SUBPART I - STORAGE

- Keep all fall protection devices in a dry place free from hazardous chemicals.
- Return all fall protection devices not in use to the tool room or client. (If applicable)
- Keep all fall protection devices in toolboxes, lockers, etc. Do not leave fall protection devices in back of trucks or in units.

SUBPART J - FALL RESCUE PLANNING

What happens to an individual who has fallen from his or her workstation, the fall protection having performed its designed function and the worker is suspended 50 feet above the +10 deck on a production platform? How are post-fall trauma injuries or potential injuries handled once the victim is recovered? These are some of the obvious questions that this policy will address.

Rescue Planning



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- Inventory useful tools (extension poles, ladders, scaffolds, man-lifts, personnel baskets, hoists, rescue winches, etc.) and their location prior to beginning work at elevation.
- Evaluate the work area and determine possible scenarios that could occur and plan to address these worst-case scenarios.
- Ensure that emergency contact information is current and available to all personnel involved in the project.
- Never allow an individual to work un-attended in a safety harness.
- All anchorage points should be as high and tight as work permits.
- All personnel should be trained to recognize suspension trauma/orthostatic intolerance symptoms and how to minimize symptoms. A "ladder" lanyard should be used whenever possible.
- Fit test fall protection and choose the most comfortable harness available and the shortest lanyard that is practical for the work being performed.

Emergency Procedures

- Communicate with the victim, establish the level of consciousness and evaluate injuries. Monitor the victim continuously.
- Call emergency medical personnel before attempting rescue so that they can be en-route while other activities are taking place.
- The fall protection competent person or other qualified person must take charge of the overall rescue safety plan.
- Evaluate the Scene: Can a rescue be conducted without putting other personnel at unacceptable risk? Time is short. A rescue should take place within fifteen (15) minutes or the risk to the victim rises significantly. The highest risk is to a victim who is unconscious or otherwise unable to move.

After a Fall

- If the victim is able to move without excess pain or causing further injury, the victim should pump his or her legs frequently to activate the muscles and reduce the risk of venous pooling.
- If a foothold is available, it can be used to alleviate pressure and delay symptoms. Such a foothold can be found on the special "ladder" lanyards from Webb-Rite. Alternate the stress relief from one leg to the other frequently.
- Some fall protection manufacturers (Including Webb-Rite) supply self rescue devices. If available, and if you are properly trained in self-rescue procedures and the self-rescue device does not put you at increased risk, then these



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devices may be used at the discretion of the personnel who is in charge of the rescue.

Post Rescue Procedures

- Do not allow the victim to fully recline immediately following the rescue. This can result in death when the trapped blood volume is suddenly released. Place the victim in a sitting of kneeling position for at least 45-minutes to an hour. Horizontal positioning should not be attempted until the victim reaches a hospital and is under the supervision of a physician. It is extremely important to notify the medical evacuation personnel and emergency room personnel of the risks of placing the victim in a horizontal position as all trauma victims are normally transported in a horizontal position; however, medical personnel must make the final decision as to how to transport the victim.
- Be aware that the victim may have spinal trauma and may need to be transported or supported with a backboard / cervical collar.
- Comfort the victim and keep them warm until the EMS personnel arrive.

Harness / Lanyard Inspection Report

Revision Date: _	9/30/09, 2/19/18	
Approved By: _	Safety Committee	

HARNESS / LANYARD INSPECTION REPORT

Inspector:	Date:
TYPE OF HARNESS: Serial Number:	
 □ Full-Body Adjustable Harness □ Full-Body Specialty Adjustable Harness □ Flame Retardant Kevlar/Nomex Welders Harness □ Padded Full-Body Adjustable Harness □ Flotation Full-Body Adjustable Harness □ Other: 	
HARNESS WEBBING OR LEATHER CONDITION E Fraying OK Bad Other Weld Burns OK Bad Other Cuts OK Bad Other Excessive Wear OK Bad Other Stitching OK Bad Other Rivets OK Bad Other D-Rings OK Bad Other Buckles OK Bad Other	
TYPE OF LANYARD Serial Number: Manufacturer: Single OK Bad Other Double (Y-Leg) OK Bad Other Loop on OK Bad Other Hook on OK Bad Other Adjustable OK Bad Other	
Other:	
LANYARD CONDITION EVALUATION Excessive Wear OK Bad Other Fraying OK Bad Other Cuts OK Bad Other Weld Burns OK Bad Other Deteriorate OK Bad Other Safety Latch Hook OK Bad Other D-Rings OK Bad Other Data Tag (Certification data present and legible) OK Bad O	