

Fall Protection

Short description

This section outlines the requirements to effectively protect Centennial employees and subcontractors from the hazards of working at heights.

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1 Objective and area of application

The following section provides guidelines to assist Centennial employees, subcontractors, and other affected individuals from falling off, onto, into, or through working levels. Areas covered by this procedure include, but are not limited to:

- Controlled access zones
- Ramps, runways, and other walkways
- Floor openings and holes
- Warning line systems
- Roofing work
- Wall openings
- Other walking/working surfaces
- Falling object protection
- Safety monitor systems
- Fall arrest systems
- Fall restraint systems
- Guardrail systems

A Fall Protection Work Plan (Appendix 1) shall be submitted and approved by the Centennial Representative and SSR anytime that employees or subcontractors are exposed to a fall hazard of 6 feet or more to a lower level with the exception of employee or subcontractors working from an elevated work platform (scissor or aerial lift). In this case, a comprehensive AHA shall be completed, all occupants shall utilize appropriate fall protection equipment (full body harness and fall restraint lanyard connected to a manufacturer provided anchorage), operator shall be trained to operate the platform and all elevated work platform manufacturer requirements are being properly adhered to.

2 Superior and additional applicable documents

1000_GP_11_01_en_6.0 Global Policy on Health, Safety, Environment/Sustainability and Quality (HSEQ)

ANSI/ASSE Z359- 2007: Safety Requirements for Personal Fall Arrest Systems, Subsystems and Components

This section of the HSEQ Manual applies to all Centennial employees and subcontractors who are performing work in Centennial facilities and project sites. There may be more stringent requirements than this section as defined by specific State, local or contact specific fall protection requirements. If there is a conflict between this section and other applicable regulations, the more stringent will apply.

3 Definitions

The following definitions of terms are important for an understanding of this section.

Term	Definition
Centennial	All Centennial employees, joint venture employees, subcontractors, and business partners
Anchor Point	A secure point of attachment for personal fall arrest equipment that is capable of supporting impact loading of 5,000 pounds per attached employee or shall be designed and installed under the supervision of the Qualified Person
Competent Person	Person who can identify existing and predictable hazards in the surroundings or working conditions that are unsanitary, hazardous, or dangerous to employees and has authority to take prompt corrective measures to eliminate or protect against those hazards
Connector	A device which is used to connect part of the personal arrest system, positioning, or restraint systems together
Deceleration Device	Any mechanism (rope, grabbing device, rip stitch lanyard etc.) specially woven lanyard or automatic self-retracting lifeline/lanyard, which serves to dissipate a substantial amount of energy during a fall arrest, or otherwise limits the energy imposed on an individual during fall arrest
Deceleration Distance	The additional vertical distance a falling person travels, excluding lifeline elongation and free fall distance, before stopping, from the point at which a deceleration device begins to operate or engage
Fall Arrest System	A system designed to successfully decelerate and stop a worker who experiences a free fall
Fall Restraint System	A system designed to prevent the worker from reaching an area in which a free fall could occur
Full Body Harness	A design of multiple adjustable straps that can be secured around the body, having D-rings as means for attaching carabiners, lanyards, or other devices suitable for fall arrest, work positioning or restrain
Guardrail	A vertical barrier erected along exposed edges of walking/working surfaces to prevent falls of persons to lower levels or the ground
Hole	A void or gap 2 inches or more in its least dimension in a floor, roof, or other walking/working surface.
Horizontal Lifeline	A component consisting of a flexible line for connection to anchorages at both ends to stretch horizontally and which serves as a means for connecting other components of a personal fall arrest system to the anchorage

HSEQ	Health, Safety, Environment and Quality
Lanyard / Shock Absorber	A flexible line of rope or strap that generally has a connector or snap hook at each end and is used for connecting the full body harness to an anchor point
Lifeline	A component consisting of a flexible line for connection to an anchorage at one end to hang vertically or for connection to anchorages at both ends to stretch horizontally
Lower Level	Those areas or surfaces 4 or 6 feet or more below the working surface to which an employee could fall. Such areas include, but are not limited to, ground levels, floors, platforms, ramps, runways, excavations, pits tanks, material, water, equipment, structures, or portions thereof.
MAF	Maximum arresting force (Body weight x free fall distance = MAF). OSHA limit is 1,800 pounds.
Opening	A gap or void 30 inches or higher and 18 inches or wider, in a wall or partition, through which employees can fall to a lower level
Positioning Device	A system that holds and sustains the worker on an elevated vertical surface and allows him/her to work with both hands free and limits the free fall to two feet
PSO	Project Safety Officer
Qualified Person	A person with a recognized degree, professional certificate, or professional standing, or who by extensive knowledge, training and experience has successfully demonstrated the ability to solve or resolve problems related to the subject matter of the work or the project
Rope Grab	A mobile or static deceleration device attached to a vertical rope lifeline that automatically by friction locks onto the rope to arrest the fall of a worker
RPE	Registered Professional Engineer
Safety Monitor	A system in which a competent person is responsible for recognizing and warning employees of fall hazards
Safety Net	A fall arrest system that uses nets to arrest falling persons before they would contact a lower level or obstruction
Self-retracting Lifeline (SRL)	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
SSR	Senior Site Representative
Walking / Working Surface	Any surface, whether horizontal or vertical, on which an employee walks or works

Warning Line	A system of ropes, wires, or safety chains to warn and keep workers away from a fall hazard
HSEQ Director	Leads the HSEQ Team

4 Personnel Roles and Responsibilities

4.1 Competent Person

The competent person shall have the following responsibilities regarding fall protection:

- Report all questionable activity / conditions to the project superintendent and/or PSO
- Coordinate the implementation of the site-specific fall protection plan(s) (see Appendix 1: Fall Protection Work Plan)
- Initiate stop work procedure if questionable conditions are not correct or if site specific fall protection plan(s) are not followed
- Perform periodic inspections on all fall protection equipment according to manufacturer's specifications
- Enforce approved site-specific fall protection plan(s)
- Actively supervise all work on an elevated walking/working surface greater than 6 feet above a lower level under their operational control
- Inspect all fall protection systems after:
 - Each installation of a fall protection system
 - Any occurrence or incident

4.2 Qualified Person

A qualified person shall have the following responsibilities regarding fall protection:

- Verify the condition of existing anchor points
- Provide guidance and technical review of complex fall protection plans / systems
- Design of fall protection systems or components

4.3 Authorized user

An individual who has received training from a qualified person on the potential hazards associated with scaffolding and/or work platforms and is authorized to access or work from a scaffold system or work platform. Authorized users shall report any deficiencies or sub-standard conditions related to the scaffold or work platform to the competent person and the Centennial project superintendent.

Employees and subcontractors are responsible for wearing the appropriate fall protection equipment and for following the process specified in this section. Employees and subcontractors are responsible for the proper care, use and inspection of their assigned fall protection equipment. Employees are expected to report any unsafe conditions to their supervisor.

Authorized users will be trained by a qualified person in the following:

- The hazards associated with working from heights
- The nature of fall hazards
- Procedures for erecting, maintaining, disassembling, and inspecting the fall protection system in use
- Use and operation of guardrail systems, personal fall arrest / restraint systems, safety net systems, warning line systems, safety monitoring systems, controlled access zones, and any other protection to be used
- Limitations on the use of mechanical equipment when performing roofing work on a low-sloped roof
- Procedures for handling and storage of equipment and materials
- The erection of overhead protection
- Individual roles and responsibilities in the fall protection plan
- Inspection and use of personal fall protection equipment
- Standards contained in 29 CFR 1926 subpart M – Fall Protection

5 Fall protection hazard assessment

Prior to selecting fall protection equipment, a competent person shall make a hazard assessment of workplace conditions where the equipment is required and understand the intended use of such equipment.

The fall protection hazard assessment shall, at a minimum, identify:

- The presence of hot objects, sparks, flames, and heat-producing operations
- Chemicals
- Electrical hazards
- Environmental contaminants
- Sharp objects
- Abrasive surfaces
- Moving equipment and materials
- Unstable, uneven, and slippery walking/working surfaces
- Unguarded wall or floor openings
- Climatic and weather factors

The material and construction of the personal fall arrest system (PFAS) shall be considered in the equipment selection process such that these workplace conditions are suitably addressed and responded to. The equipment must match the work situation and workplace environmental factors.

5.1 Anchorages

A personal fall arrest system (PFAS) shall be used only if attached to an anchorage or anchorage with anchorage connector that is rated for 5,000 pounds or twice the MAF. Secure anchor points are the most critical component when employees must use fall protection equipment.

At a minimum, the following criteria must be considered for each type of anchor point:

- Anchors used for fall arrest systems must be capable of supporting 5,000 pounds per user, unless otherwise stated / designed by a qualified person or RPE
- Anchors used for fall restraint systems must be capable of supporting (4) times the intended load

Anchorage used to attach personal fall arrest systems shall be independent of any anchorage being used to support or suspend platforms. When evaluating an anchorage, both the direction and magnitude of applied forces should be considered.

5.2 Ramps, Runways, Other Walkways

All ramps, runways, and other walkways crossing or covering openings of four feet or more, shall be protected with a guardrail system.

5.3 Holes / Covers

All covers for holes in floors, roofs and other walking/working surfaces or potential walking/working surfaces, shall be clearly marked with the word "HOLE" and be securely attached. In all instances, the marking of the word "HOLE" shall be as follows:

- Marking color shall be RED
- Lettering shall be at least 12" high when possible (or as large as possible for small coverings)
- Block style lettering (printed capital letters) shall be used
- Secured from movement or accidental displacement
- Support twice the weight of employees, equipment, and materials that may be imposed on the cover at any time

Hole covers and the required markings shall be inspected daily by the Centennial project superintendent and/or PSO or designated representative and the results of the inspection noted in the daily report. Any deficiency relating to covers and/or required markings shall be corrected immediately. Markings shall be maintained to ensure they are legible.

5.4 Warning Line Systems

Warning line systems shall consist of ropes, wires or chains, and supporting stanchions. The warning lines shall be constructed as follows:

- Flagged at not more than six-foot intervals with high visibility material
- Rigged and supported so that the lowest point including sag is no less than 34 inches from the walking/working surface and its highest point is no more than 39 inches from the walking/working surface
- Stanchions, after being rigged with warning lines, shall be capable of resisting, without tipping over, a force of at least 16 pounds applied horizontally against the stanchion, 30 inches above the walking/working surface, perpendicular to the warning line and in the direction of the floor, roof, or platform edge

- The rope, wire, or chain shall have a minimum tensile strength of 500 pounds and after being attached to the stanchions, shall support without breaking the load applied to the stanchions as prescribed above
- Attached to each stanchion in such a way that pulling on one section of the line between stanchions will not result in slack being taken up in the adjacent section before the stanchion tips over
- Only be used on flat or low slope surfaces (4:12 or less)
- Erected around all sides of the roof work area
- Shall connect points of access, material handling area, storage areas and hoisting areas with a path formed by two warning lines
- When the path to a point of access is not in use, a barricade equivalent in strength and height to the warning line shall be placed across the path at the point where the path intersects the warning line
- No personnel are allowed in the area between the roof (or floor) edge and the warning line system without fall protection

When mechanical equipment is being used, the warning line shall be erected not less than six feet from the roof edge parallel to the direction of mechanical equipment operation, and not less than 10 feet from the roof edge perpendicular to the direction of mechanical equipment operation.

When mechanical equipment is not being used, the warning line shall be erected not less than six feet from the roof edge for roofing applications and not less than 15 feet from the roof edge during all non-roofing activity.

5.5 Controlled Access Zones

The use of Controlled Access Zone(s) as a fall protection method is prohibited.

5.6 Roofing Work

5.6.1 Low-Sloped Roofs

All employees working on low sloped roofs (less than a 4:12 pitch, or 18.43 degree angle) with unprotected sides and edges six feet or more above the lower levels shall be protected from falling by a guardrail system, warning line system or personal fall arrest and/or restraint system.

5.6.2 Steep Roofs

All employees on a steep sloped roof (greater than 4:12 pitch, or 18.43 degree angle) with unprotected sides and edges six feet or more above the lower levels shall be protected by a personal fall arrest system.

5.7 Wall Openings

All employees working on, at, or near wall openings where the bottom edge of the wall opening is six feet or more and the inside bottom edge of the wall opening is less than 39 inches above

the walking/working surface, shall be protected by use of either a guardrail system or a personal fall arrest/restraint system.

5.8 Falling Object Protection

When guardrail systems are used to prevent materials from falling from one level to another, any opening shall be small enough to prevent passage of potential falling objects. No materials or equipment, except masonry or mortar shall be stored within four feet of working edges. Excess mortar, broken or scattered masonry, and all other materials and debris shall be kept clear of the working area by removal at regular intervals.

During roofing work, materials and equipment shall not be stored within six feet of a roof edge, opening, or skylight unless guardrails are erected at the edge, and materials piled, grouped, or stacked near a roof edge shall be stable and self-supporting.

5.8.1 Canopies

When canopies are used as protection from falling objects, they shall be constructed strongly enough to prevent collapse and to prevent penetration by any objects that fall onto them. Canopies shall be inspected daily or any time there is a significant change in weather or site conditions which would cause the canopy to become unstable.

5.8.2 Toeboards

When toeboards are used as protection from falling objects, they shall be erected along the edges of the overhead walking or working surface for a distance sufficient to protect persons working below. Toeboards shall be capable of withstanding a force of at least 50 pounds applied in any downward or outward direction at any point along the toeboard. Toeboards shall be a minimum of three and one half inches tall from their top edge to the level of the walking/working surface, have no more than 0.25 inches clearance above the walking/working surface, and be solid or have openings no larger than one inch in size.

Where tools, equipment, or materials are piled higher than the top edge of a toeboard, paneling or screening shall be erected from the walking/working surface or toeboard to the top of a guardrail system's top rail or midrail, for a distance sufficient to protect persons below.

5.9 Safety Monitor System (SMS)

The use of a SMS as a fall protection method is prohibited.

5.10 Fall Arrest and Restraint Systems

All personal fall arrest/restraint systems shall be utilized for the protection of the worker at heights, and shall not be used for lifting equipment, materials, or tools. Additionally, any part of the fall arrest system that was, or is believed to have been subjected to "impact loading" from a slip or fall shall be immediately removed from service and shall not be used again for worker protection until inspected and determined by a competent person to be undamaged and suitable for use.

When a personal fall arrest system is used the system shall:

- Produce a maximum arresting force (MAF) of not more than 1,800 pounds
- Bring the fall to a complete stop with a deceleration distance of not more than 42 inches
- In suspension, after the fall is arrested, the angle at rest which the vertical center line of the test torso makes with the vertical shall not exceed 30 degrees

The use of a body belt for fall protection is prohibited.

All personal fall arrest and restraint systems shall be inspected by the user prior to each use using the Personal Fall Arrest System Inspection Checklist (Appendix 2) or other approved inspection checklist or form. Additionally, each individual item of a personal fall arrest system must be inspected and documented by a competent person annually or more frequently if required by the equipment manufacturer. The purpose of two-level inspection of equipment is to provide two independent means for guarding against oversight in detecting and controlling against the use of defective, damaged, and improperly maintained equipment. When inspection reveals defects in, damage to, or inadequate maintenance of equipment, the equipment shall be permanently removed from service or undergo adequate corrective maintenance before return to service.

The inspection of fall protection components shall include examination for:

- Absence or illegibility of markings
- Absence of any elements affecting the equipment form, fit or function
- Evidence of defects in or damage to hardware elements including:
 - Cracks
 - Sharp edges
 - Deformation
 - Corrosion
 - Chemical attack
 - Excessive heating
 - Alteration
 - Excessive wear
- Evidence of defects in or damage to straps or ropes including:
 - Fraying
 - Un-splicing
 - Un-laying
 - Kinking
 - Knotting
 - Roping
 - Broken or pulled stitches
 - Excessive elongation
 - Chemical attack
 - Excessive soiling
 - Abrasion
 - Alteration
 - Needed or excessive lubrication
 - Excessive aging and excessive wear

- Alteration, absence of parts or evidence of defects in, damage to or improper function of mechanical devices and connectors

D-rings and snap-hooks shall have a minimum tensile strength of 5,000 pounds without cracking, breaking, or suffering permanent deformation. Snap hooks shall be sized to be compatible with the member to whom they will be connected and shall be the locking type.

Snap hooks shall not be engaged directly to:

- Webbing, rope, or wire rope
- To other snap hooks
- To a D-ring to which another snap hook or other connector is attached
- To a horizontal lifeline (unless manufacturer allows such connections)
- To any object incompatible in shape or dimension relative to the snap hook

5.10.1 Maintenance and storage

Maintenance and storage of fall protection equipment shall be conducted in accordance with the manufacturer's instructions. Unique issues, which may arise due to conditions of use, shall be addressed with the manufacturer. The manufacturer's instructions shall be retained for reference in the approved site-specific fall protection work plan.

Fall protection equipment, which needs or scheduled for maintenance shall be tagged as "out of service" or "unusable" and removed from service in accordance with HSEQ Manual section 15 (Protective Barrier, Warning Signs and Tags).

Equipment shall be stored in a manner as to preclude damage from environmental factors such as:

- Heat
- Light
- Excessive moisture
- Oil
- Chemicals and their vapors
- Other degrading elements

Equipment, that is damaged or in need of maintenance, shall not be stored in the same area as other usable fall protection equipment. Prior to using any equipment, which has been stored for long periods of time, a detailed inspection shall be performed by a competent person. Heavily soiled, wet, or otherwise contaminated equipment shall receive proper maintenance (e.g. drying and cleaning) prior to storage.

5.10.2 Horizontal Lifelines (HLL)

Horizontal lifelines shall be designed, installed, and used under the supervision of a qualified person, as part of a complete fall arrest system that maintains a safety factor of at least two. Lifelines shall be protected against cuts and abrasions.

A fall protection system, which incorporates a horizontal lifeline (outside the scope of this HSEQ Manual) shall be evaluated in accordance with acceptable engineering practice (RPE) to determine that such system will perform as intended.

5.10.3 Self-retracting Lifelines (SRL)

Self-retracting lifelines and lanyards that automatically limit free fall distance to two feet or less shall be capable of sustaining a minimum tensile load of 3,000 pounds applied to the device with the lifeline or lanyard in the fully extended position.

Self-retracting lifelines and lanyards that do not limit free fall distance to two feet or less, rip stitch lanyards, and tearing and deforming lanyards shall be capable of sustaining a minimum tensile load of 5,000 pounds applied to the device with the lifeline or lanyard in the fully extended position.

Self-retracting lifelines shall be installed at a height equal to or greater than the dorsal D-ring on the user's full body harness. The worker shall maintain a 30-degree radius work area below the SRL. Employees may anchor to an SRL located lower than his or her dorsal D-ring only when using a leading-edge series SRL or an SRL that has been equipped with a shock absorber and has been designed to withstand a free-fall.

5.10.4 Calculated clearance/swing fall

Calculated clearance is incorporated into the Fall Protection Work Plan (Appendix 1) and is a vital function of any fall protection plan. Calculated clearance is an assurance that the worker will not strike the ground or walking / working surface in the event of a fall. The potential for employee injury is increased if miscalculations are made or if the wrong fall protection equipment is used. The diagrams below illustrate some common applications of fall protection systems and the required clearance for each.

Note that when calculating fall clearance for the use of a 6' shock-absorbing lanyard, the following information must be considered when choosing a suitable anchor point:

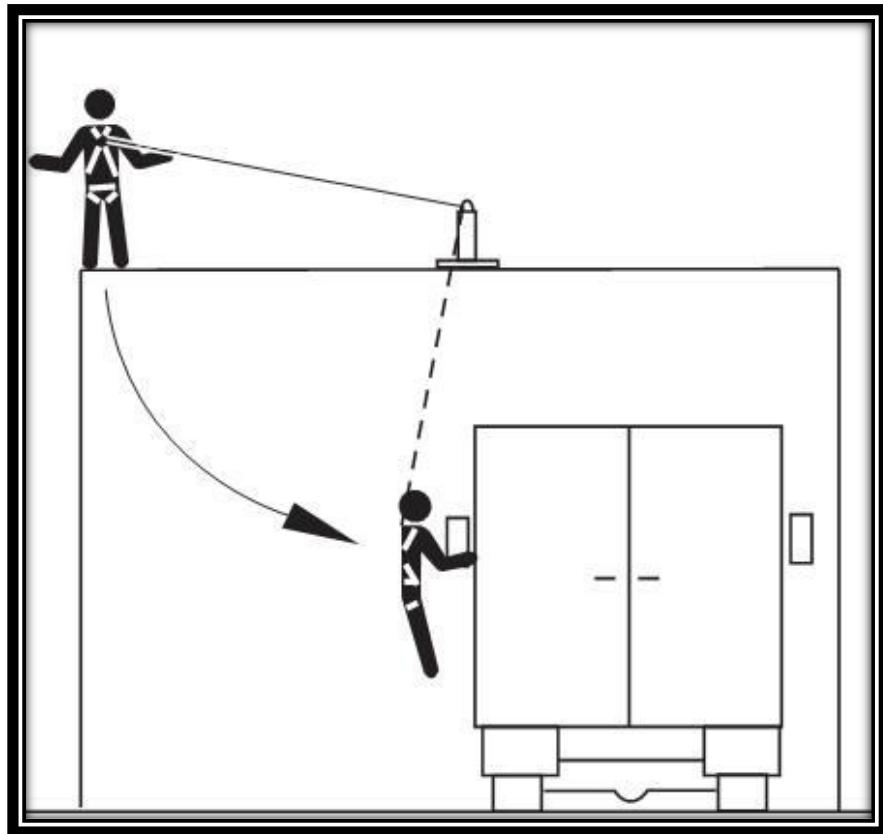
- Length of lanyard, 6 feet (12 feet if using a force II lanyard)
- Length of shock absorber, 3.5 feet
- Height of worker, approximately 6 feet
- Safety Factor, 3 feet

Additionally, when using a self-retracting lifeline, the following considerations must be evaluated when choosing a suitable anchor point:

- Length of SRL, 2 feet
- Max free fall distance, 2 feet
- Deceleration distance, 2.5 feet (if applicable)
- Height of worker, approximately 6 feet
- Safety Factor, 3 feet

Risk of swing fall is generated when a worker travels horizontally away from the anchor point toward a leading edge, roof edge, or other fall hazard. If the attachment point is not directly

overhead, but instead is located at the workers waist, ankle, or the worker has strayed more than 30° from an overhead attachment point, swing falls are unavoidable. When calculating the fall clearance, employees should consider whether a swing fall hazard exists and whether the fall zone is clear of any other obstructions (i.e. vehicles, building walls/design, conduit, or any other equipment located below the walking working surface).



5.10.5 Safety Nets

Safety nets must be installed as close as practicable under the walking/working surface on which employees are working and never more than 30 feet below such levels. Defective nets shall not be used. Safety nets shall be inspected at least once a week for wear, damage, and other deterioration. When implementing the use of safety nets predesigned/engineered systems shall be used. Manufacturers set up and end user direction shall always be kept on site and included in the site-specific fall protection plan.

Safety nets shall be installed with enough clearance underneath to prevent contact with the surface or structure below.

When nets are used on bridges, the potential fall area from the walking/working surface to the net shall be unobstructed.

Items that have fallen into safety nets including—but not restricted to, materials, scrap, equipment, and tools—must be removed as soon as possible.

5.10.6 Emergency Rescue Procedures

Rescue shall not be attempted for an individual suspended from a fall arrest system unless specifically trained to do so. If emergencies arise during work activities, emergency services shall be summoned. The rescue plan shall be outlined in the fall protection work plan.

5.11 Work Positioning Devices

Body harness systems shall be set up so that a worker can free fall no more than two feet. All belts or harnesses shall be secured to an anchorage capable of supporting at least twice the potential impact load of an employee's fall or 3,000 pounds, whichever is greater.

5.12 Guardrail Systems

The use of a guardrail system is considered a passive method for fall protection and is generally the preferred method for eliminating fall hazards.

Guardrail systems and their use shall comply with the following provisions:

- Top rails and posts shall have a vertical height of 42 +/- 3 in (106.6 +/- 7.6 cm) from the upper surface of the top rail to the floor, platform, runway, or ramp level
- Mid rails shall be erected halfway between the top rails and the walking / working surface
- Toe boards shall be provided on all open sides/ends at locations where persons are required or permitted to pass or work under the elevated platform or where needed to prevent persons and material from falling from the elevated platform

Guardrails must be capable of withstanding, without failure, an outward or downward force of at least:

- 200 lb. within 2 inches of the top rail.
- 150 lb. at the midrail
- 50 lb. at the toe board

When a hoisting or access/egress areas is required, a chain, gate or removable guardrail section must be placed across the access opening. The system should be smooth to prevent punctures, lacerations or snagging of clothing.

6 Training

All Centennial employees and subcontractors that are exposed to fall hazards shall be trained by a competent person in the following:

Training shall be provided in proper use of the equipment and include:

- How to use the fall protection equipment
- How to estimate and limit the maximum arresting force to acceptable limits for the fall protection system used
- Proper methods of donning, adjusting, and interconnecting of the equipment
- Proper attachment locations on the equipment
- Intended function and performance characteristics for each item of equipment
- Proper attachment methods including compatibility of the sizes of snap hooks, D-Rings, and other connections to reduce the probability of accidental disengagement
- How to determine free fall distance and total fall distance
- What to do after a fall to protect the user from injury
- Emergency rescue planning and execution to include:
 - Methods of rescue
 - Rescue personnel availability
 - Type of equipment available for rescue and effective means to summon rescue personnel

Retraining is required when:

- Changes in the workplace render previous training incomplete or obsolete
- Changes in the types of fall protection systems or equipment to be used render previous training incomplete or obsolete
- Inadequacies in an employee's knowledge or use of fall protection systems or equipment indicate that the employee has not retained the requisite understanding or skill

7 Amendment history

Date	Version	Revised content
08.04.2014	1.0	Initial Preparation
01.01.2015	1.1	Clarification on Fall Protection Work Plan approval and signature authority
12.06.2016	1.2	Clarification on fall protection requirements while working from an elevated work platform (paragraph 1)
01.01.2018	2.0	Updates to Paragraph 2 Superior Documents to add the Group Policy and Global Standards, Paragraph 3 Definitions (Centennial, MAF and HSEQ Director), Paragraph 5.3 Hole Covers (letter sizing), Paragraph 5.10 Fall Arrest and Restraint Systems (documented inspection and locking snap-hooks), Paragraph 5.10.6 Emergency Rescue Procedures (rescue plan inclusion) and Appendices 1 and 2 (logo)
07.01.2019	2.1	Updates to Paragraph 5.4 Warning Line Systems and Paragraph 5.9 Safety Monitor System
10.01.2019	2.2	Updates to Appendix 1 Fall Protection Work Plan
04.01.2021	2.3	Updates to Paragraph 2 Superior Documents and Appendix 2 Personal Fall Protection System Inspection Checklist

01.02.2026	2.4	Updates to Paragraph 1 and Appendix 1 to reflect required signatures from updated Safety Plan Signature Matrix
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8 Appendix

Appendix 1: Fall Protection Work Plan (0206500_CP_11_20_en_A1.5)

Appendix 2: Personal Fall Protection System Inspection Checklist
(0206500_CP_11_20_en_A2.2)

Centennial Fall Protection Work Plan

0206500_CP_11_20_en_A1.

Project Title: _____ Date: _____

Contract and Task Order Number: _____ PSO/SSHO Name: _____

Project Location (be specific, include Bldg. # / Floor / grid / etc.):

Complete the form and answer the questions on the form below. Be as specific as possible. If more space is needed to adequately explain scenarios / equipment / means and methods, please use additional space provided at the back of plan.

Authorized Person(s) *Name: _____

Competent Person(s) Name: _____

Qualified Person(s) Name: _____

**Note: Two authorized workers must be present whenever fall restraint or fall arrest equipment is in use. Even when no such equipment is used, the two-person rule is recommended for any work conducted at heights.*

How high is the work surface from ground level or lower work surface? (be specific)

What type of access / egress will be provided?

How will equipment and tools be conveyed to the elevated work location?

Describe the walking / working surface?

List environmental factors effect the work at heights (i.e. heat / cold / wind / water / ice)?

Will any individuals on site be working below the elevated work surface or be exposed to falling objects?

Yes No

- If yes, what barricading will be required, and will toe boards be implemented (explain below):

Fall protection method? (see options below, it is acceptable to choose multiple selections)

Guard Rails:

Yes	No
-----	----

Work Procedures:

Yes	No
-----	----

Restraint:

Yes	No
-----	----

Arrest:

Yes	No
-----	----

Complete the section below if fall RESTRAINT or fall ARREST will be implemented.

Are there any existing anchorage* points that can be used? If so, where?

**Note: existing anchor points must be inspected by a qualified person and tested annually*

Are anchorage points labeled as engineered 5,000 lb. anchors or have been determined to withstand 2 times the anticipated load by an RPE (Qualified Person)?

Yes	No
-----	----

- If no, can pre-manufactured engineered anchors be utilized?
(i.e. concrete anchors / beam straps / tie back lanyards / etc.)

Yes	No
-----	----

Have Anchor point(s) been inspected?

Yes	No
-----	----

- If yes, list the name & company of the person conducting the inspection: _____

List all equipment to be used (i.e. full body harness / lanyards / shock absorbers / fall limiters / connecting hardware / beam straps / self-retracting lifeline / etc.):

If using fall arrest, what is the distance from the anchor point to the ground or lower level?

Note: If using conventional fall arrest equipment (6' lanyard / 4' shock absorber / full body harness) the fall clearance required will most likely be between 15-18 feet.

Are there any swing fall hazards or objects (plumbing lines / electrical lines / HVAC equipment, etc.) that the individual may contact during a fall? If yes, explain below:

Yes	No
-----	----

Show clearance calculations including (lanyard length, deceleration distance, worker height and safety factor). Use space below, may include sketch as well.

Complete the section below when considering Emergency Rescue

What methods will be implemented to ensure prompt (6-10 minute) emergency rescue of a fallen worker?

List Rescue Equipment immediately available, describe how it will be staged quickly and safely to perform rescue.

Rescue Equipment:

Staging & Implementation

Note: Immediate response is required to minimize the risk of further injury or death to the fallen worker as a result of suspension trauma.

If high angle rescue / assisted rescue will be performed by local emergency services / fire department, have they been briefed on the nature of the project site?

Yes	No
-----	----

Are they capable of supplying rescue operations to your site?

Yes	No
-----	----

List communications with emergency responders below. Include date / time / conversation details:

Obstructions present preventing rescue of a suspended worker?

Yes	No
-----	----

Will the contractor implement the use of an internal or contracted third party high angle rescue team?

Yes	No
-----	----

If local emergency responders will not be used and the contractor has implemented a third party or internal high angle rescue team, are the individuals performing assisted rescue trained in rescue at heights?

Yes	No
-----	----

If applicable, list the names of the individuals that are responsible for rescuing a suspended worker at heights:

Note: Attach training documentation / certifications of individuals listed as high angle rescuers to this fall protection plan.

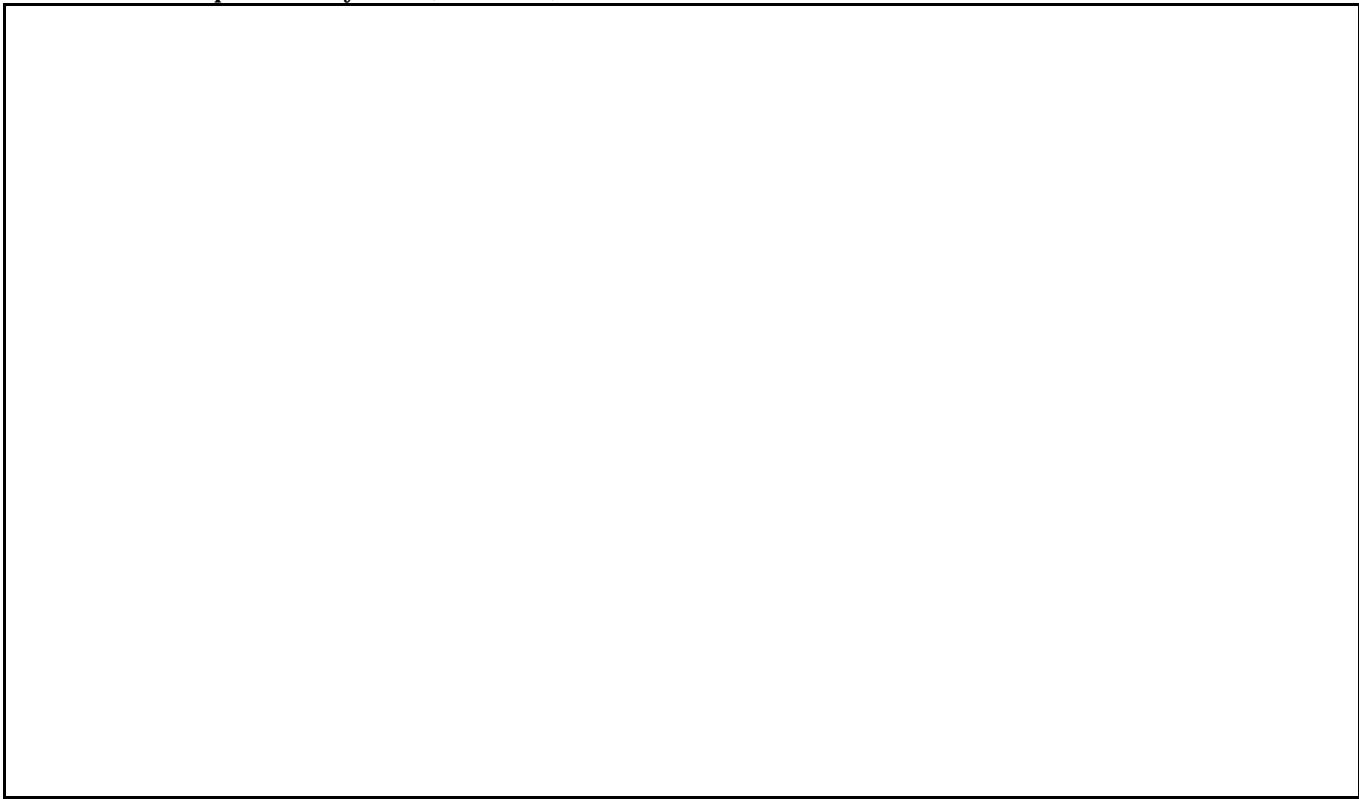
If worker is utilizing a fall arrest system will he/she be equipped with trauma straps / foot straps to eliminate the dangers of suspension trauma?

Yes	No
-----	----

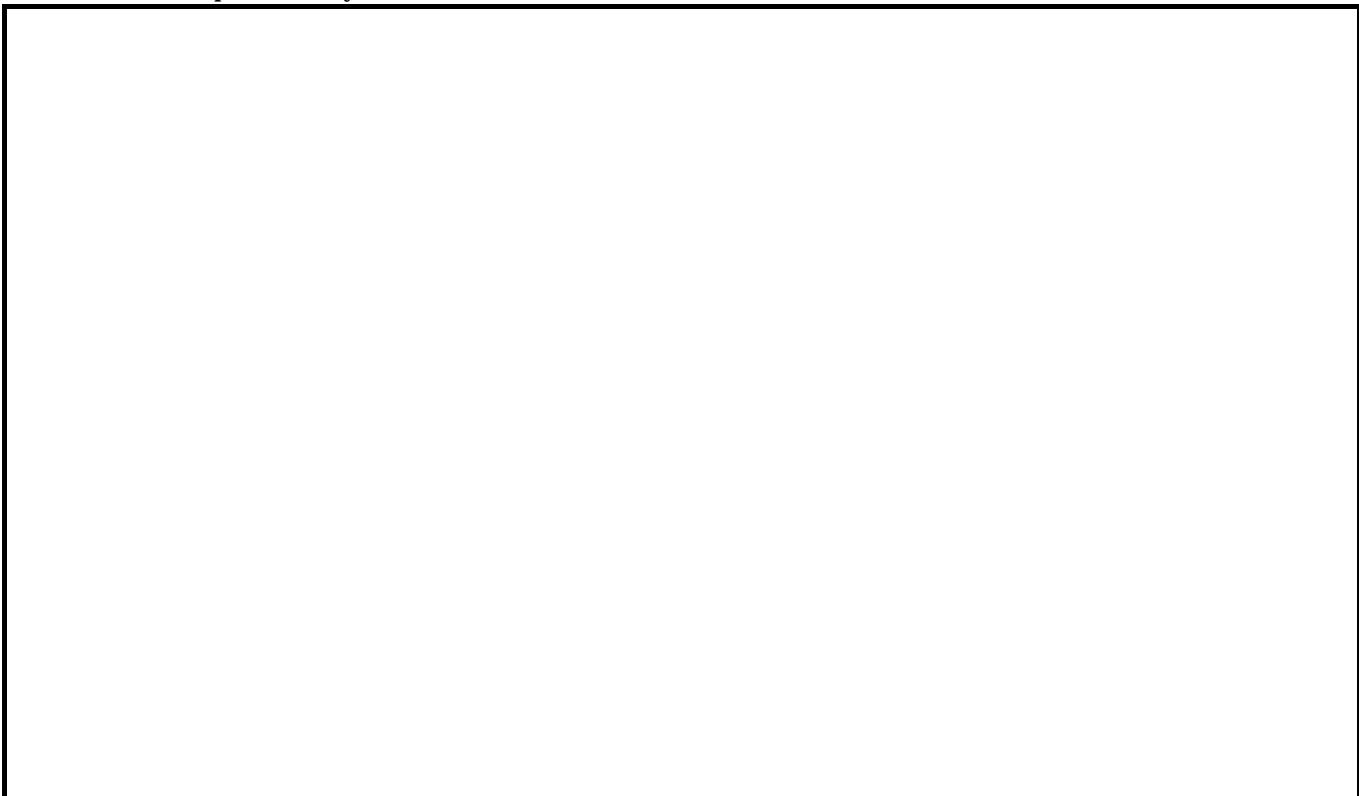
Additional Notes:

Complete the section below by placing a sketch of the work area and fall protection systems

Work area and fall protection systems (aerial view):



Work area and fall protection systems (side view):



Plan Approval (Signature Required)

Plan Author (printed) _____

Signature

Date: _____

Qualified Person(s) (printed) _____

Signature

Date: _____

Plan Review (Signature Required)

HSEQ Team Representative (printed) _____

Signature

Date: _____

SSR (printed) _____

Signature

Date: _____

Personal Fall Protection System

Inspection Checklist

0206500_CP_11_20_en_A2.2

Instructions: When performing a safety inspection check on fall protection equipment / systems, indicate whether each item is acceptable by placing a check mark on the associated days the equipment is requested to be used. If any feature of fall protection equipment is not acceptable, it shall be clearly labeled "DO NOT USE" and destroyed or removed from service permanently or until proper repairs can be performed (see manufacturer's guidelines).

Equipment Inspected: _____ Serial #: _____ Manufacture _____ Date: _____

Equipment Inspected: _____ Serial #: _____ Manufacture _____ Date: _____

Equipment Inspected: _____ Serial #: _____ Manufacture _____ Date: _____

Comments / Special Notes: _____

Full Body Harness / Lanyard / Energy Absorber / Lifelines / Positioning Devices

General Factors X: for Fail ✓: for Pass	Date:	Monday	Tuesday	Wednesday	Thursday	Friday
Hardware - (Includes D-rings, buckles, keepers and back pads) Inspect for damage, distortion, sharp edges, burrs, cracks and corrosion						
Webbing / Straps / Ropes - Inspect for cuts, burns, tears, abrasion, frays, unsplicing, kinking, knotting, roping, excessive soiling and discoloration, chemical attack, alteration, needed / lubrication, aging, UV damage, absence of parts and improper function of parts						
Wire Rope - Inspect for broken wires, corrosion, kinks and separation of strands.						
Energy Absorber Component - Inspect for elongation, tears, soiling and impact indicator						
Stitching - Inspect for pulled or cut stitches						
Labels - Inspect, make certain all labels are securely held in place and legible						
Overall Disposition - fit / function / impact indicator / inspection grid / condition						

Snap hooks / Carabiners / Connectors / D-Rings / Anchorages

General Factors					
Physical Damage - Inspect for cracks, sharp edges, burrs, deformities and lock / gate					
Excessive Corrosion - Inspect for corrosion, rusting or pitting					
Fasteners - Inspect for corrosion, tightness, damage and distortion (if welded, inspect weld for damage)					
Markings - Inspect markings, verify legibility. Look for (ANSI Z359.1 2007) or (3,600 lbs. gate)					
Overall Disposition - function					

Self-Retracting Lifelines

General Factors					
Impact Indicator - Inspect for activation (rupture of shock pack or red stitching, elongated indicator)					
Screws / Fasteners - Inspect for damage and tightness					
Housing - Inspect for distortion, cracks, etc. Inspect anchoring loop for distortion and damage					
Lifeline - Inspect for cuts, burns, tears, abrasion, frays, soiling, discoloration and broken wires					
Locking Action - Inspect for proper "lock-up" of brake mechanism (test pull with hand)					
Retraction / Extension - Inspect spring tension (extend / retract fully by hand)					
Hooks / Carabiners - Inspect for physical damage, corrosion, proper operation and markings					

Inspector Name (print): _____ Date: _____

Note: All fall protection equipment shall be inspected by the user before each use and, additionally, by a competent person other than the user at intervals of no more than 1 year (consult manufacturer's guidelines). If special inspection considerations are called out in the manufacturer's guidelines more stringent than the list / items below, the user / competent person shall indicate such inspection items in the comments / notes section of this checklist.