ORANGE COUNTY SANITATION DISTRICT	SOP-626 (Ver. 6) Fall Protection / Walking Working Surfaces
Standard Operating Procedure (SOP)	Effective: 1/25/2022 Supersedes: 11/02/2020
Approved By: James D. Herberg General Manager	

I. Purpose

The purpose of the Elevated Work and Fall Protection Program is to protect Orange County Sanitation District (OC San) staff and contractors from falls to a lower level, slip, trips and falls, and other related hazards associated with elevated work by establishing policies and procedures for the selection, inspection, and use of fall protection systems and equipment.

This program defines fall hazards applicable to OC San, establishes requirements for fall protection systems and rescue, and training for the use, inspection, and limitations of available fall protection systems.

II. Background

It is the policy of the OC San to protect its employees from occupational injuries by implementing and enforcing safe work practices, including the appointment of Competent Persons to manage this program.

OC San has developed this program in accordance with the state of California and Federal Occupational Safety and Health Administration (CALOSHA) general industry and construction safety orders.

III. Scope

This program applies to all work performed at the OC San treatment plants, pump stations and collection system.

Fall protection is required where employees are exposed to:

1. Unprotected sides or edges of an elevated work location, such as roofs, landings, platforms, ramps, or working levels more than 30 inches above the floor, ground, or other working areas of a building.

2. Unprotected sides or edges of elevated work locations that are not buildings or building structures, such as machinery, equipment, aboveground storage tanks, tunnels, manholes, chemical containment areas, process hatches or vaults where an employee is exposed to a fall of 4 feet or more.

3. Employees engaging in construction activities on a walking-working surface with an unprotected side or edge which is 6 feet or more above a lower level.

4. Excavations or trenches that are four feet or more in depth, or where employees or equipment are required to cross over excavations greater than six feet in depth or that are remotely located.

This program does not apply to:

1. Entrances of ship stairs and stairways.

2. Fixed ladders providing access to work areas that are less than 20 feet from the floor or ground.

IV. Definitions

Administrative Controls – Safe work practices or procedures that are designed to prevent exposure to a fall by signaling or warning an authorized person to avoid approaching the fall hazard.

Aerial Lift Device – A means of equipment such as powered platforms, vehicle-mounted elevated and rotating work platforms, extensible boom platforms, aerial ladders, scissor lift, articulating boom platforms, vertical towers and powered industrial truck platforms.

Anchorage, Certified – A secure point of attachment for lifelines, lanyards, or deceleration devices. The anchorage for fall arrest, positioning, restraint, or rescue systems shall be certified by a qualified person to be capable of supporting the potential fall forces that could be encountered during a fall or that meet the criteria for a certified anchorage.

Authorized Person – A person assigned to perform work at a location where the person will be exposed to a fall hazard. An authorized person is required to receive training and to periodically demonstrate the ability to safely used the appropriate fall protection equipment. The authorized person may also be qualified for other positions such as a Competent Person, qualified person, or authorized rescuer.

Authorized Rescuer – A person assigned to perform rescue from fall protection. The rescuer is required to receive training and to periodically demonstrate the ability to perform rescue from fall protection.

Capacity – The maximum weight that a component, system, or subsystem is designed to hold.

Carabiner – A connecter 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 close to retain the object.

Clearance – The distance from the anchorage of a fall arrest system to the lower level that a worker might encounter during a fall, which includes total fall distance, deflection of anchorage and connectors, length and elongation of full body harness and body, and safety factor.

Competent Person – A designated employee responsible for the immediate supervision, implementation, and monitoring, through training and knowledge, that can identify, evaluating and addressing existing and potential fall hazards, who has the authority to take prompt corrective action with regards to such hazards.

Contractor – Organization or individual that provides goods and services to OC San under terms specified in a contract. The term contractor applies to contractors, subcontractors, consultants, service representatives and visitors.

Controlled Access Zone (CAZ) – An area in which bricklaying or precast concrete work may take place without the use of guardrails, personal fall arrest systems or safety nets. The work area is defined by a control line or other means that restricts access, including posting of signage. Lines shall be erected at least 6 to 25 feet from the lead edge and access to the zone is controlled.

Deceleration Device – A mechanism such as a rope grab, retracting lifeline or shock absorbing lanyard that absorbs or dissipates energy during a fall arrest.

Deceleration Distance – the vertical distance between the fall arrest attachment at the onset of fall arrest forces during a fall, and after the fall arrest attachment comes to a complete stop.

Descent Control Device – A load lowering device or mechanism that controls pay-out speed of line or descent speed under load once it has been engaged.

Designated Area – Means a distinct portion of the walking-working surface delineated by a warning line in which employees may perform work without additional fall protection.

D-Ring – An integral “D” shaped connector typically used in harnesses, lanyard, energy absorbers, lifelines, and connectors as an attachment point.

Descent Controller – A device designed to be used by one worker for personal descent or to lower another worker from an elevation. Can be used for egress, work positioning, or both.

Elevated Work – Any work that is done over another level or surface at heights above 4 feet, or work that is performed over a hazardous situation.

Energy (Shock) Absorber – A component whose primary function is to dissipate energy and limit deceleration forces which the system imposes on the body during fall arrest.

Fall Arrest – The action or event of stopping a free fall or the instant where the downward free fall has been stopped.

Fall Arrester – A device that travels on a lifeline and will automatically engage or lock onto the lifeline in the event of a fall.

Fall Hazard – Means any condition on a walking-working surface that exposes an employee to a risk of harm from a fall on the same level or to a lower level.

Fall Prevention – Any same level means used to reasonably prevent exposure to an elevated fall hazard. Floors, walls, guardrails, and area isolation are means of fall prevention.

Fall Protection – Any equipment, device or system that prevents an accidental fall from elevation or that mitigates the effect of such fall.

Fall Protection System, Active – A fall protection system that requires authorized persons to wear or use fall protection equipment and that requires fall protection training. The system is dynamic and requires the use of special equipment as well as worker participation. There are

two types of active fall protection systems, fall restraint and fall arrest systems, and are typically referred to as Personal Fall Arrest Systems (PFAS).

Fall Protection System, Passive – A fall protection system that does not require the use of personal protective equipment (PPE) or active participation from the worker. The system is non-dynamic, stationary, and does not move, adapt, or change when in or out of use.

Floor Hole – Any opening in a floor or platform which is smaller than a floor opening.

Floor Opening – An opening in any floor or platform, 12 inches or more in the least horizontal dimension, which includes stairway floor openings, ladderway floor openings, hatchways, and chute floor openings.

Free Fall – The act of falling before a fall protection system begins to apply forces to arrest the fall.

Free Fall Distance – The vertical displacement of the fall arrest attachment points of the person's body harness between onset of the fall and just before the system begins to apply force to arrest the fall. This distance excludes deceleration distance, and lifeline and lanyard elongation, but includes any deceleration device slide distance or self-retracting lifeline/lanyard extension before their operation and before full arrest forces occur.

Guardrail System – A passive fall protection system of horizontal rails and vertical posts that prevent a person from reaching an unprotected edge of a walking-working surface or unprotected opening from which a person could fall to a lower surface or into a hazard.

Harness, Full Body – A body support designed to contain the torso and distribute the fall arrest forces over the upper thighs, pelvis, chest, and shoulders, with means of attaching it to other components of a personal fall arrest system.

Hole – Means a gap or void 2 inches or more in its least dimension, in a floor, roof or other walking-working surface.

Horizontal Lifeline – Linear anchoring devices, which allow workers to move along the whole length of the anchor, usually without needing to disconnect and fixing points of the anchorage.

Ladder Cage – Means an enclosure mounted on the side rails of a fixed ladder or fastened to a structure behind the fixed ladder that is designed to surround the climbing space of the ladder.

Ladder, Fixed – Means a ladder with rails or individual rungs that is permanently attached to a structure, building, or equipment. Fixed ladders are individual rung ladders, but not shop stairs, step bolts or manhole steps.

Ladder, Portable – Means a ladder that can readily be moved or carried, and usually consists of side rails joined at intervals by steps, rungs, or cleats.

Ladder, Safety System – Means a system designed to eliminate or reduce the possibility of fall from a ladder. A ladder safety system usually consists of a carrier, safety sleeve, lanyard, connectors, and body harness. Cages are not ladder safety systems.

Lanyard – A flexible line or rope, wire rope or strap, which has a connector at each end for connecting to the body harness and to a fall arrestor, energy absorber, anchorage connector or anchorage.

Leading Edge - The edge of a floor, roof, or formwork for a floor other walking-working surface (such as a deck) which changes location as additional floor, roof, decking, or formwork sections are placed, formed, or constructed.

Opening – Means a gap or open space in a wall, partition, vertical waling-working surface, or similar structure that is at least 30 inches high and 18 inches wide, through which an employee could fall to a lower level.

Owning Department - Department responsible for the inspection, maintenance, and the safe operation of their fall protection equipment.

Personal Fall Arrest System – An approved system used to arrest a person in a fall from a working level. It consists of an anchor point, anchorage devices, connectors, full body harness, and may include a lanyard, deceleration device, lifeline, or suitable combinations of these.

Personal Fall Restraint System – An approved system that prevents the person from falling any distance. It consists of an anchor point, anchorage devices, connectors, full body harness, and may include a lanyard.

Positioning Device System – A full body harness system rigged to allow an employee to be supported on an elevated vertical service, such as a wall, and work with both hands free.

Program Administrator – Individual(s) tasked with the development, implementation, and management of the Fall Protection Program.

Qualified Person – A person with recognized training or professional certificate and with extensive knowledge and experience in the subject field, who is capable of, analysis, evaluation and specifications in the subject work, project, or product.

Rescue – The process of removing a person from danger, harm, or confinement to a safe location. Rescue may be assisted or performed directly by the stranded worker.

Safety Monitor – Designated Competent Person who monitors the safety of up to three other employees in a controlled access zone.

Scaffold – Means any temporary elevated or suspended platform and its supporting structure, including anchorage points, used to support employees, equipment, materials, and other items.

Self-Retracting Device – A device containing a drum wound line that automatically locks at the onset of a fall to arrest the user, but that pay out from and automatically retracts onto the drum during normal movement of the person to whom the line is attached. After onset of a fall, the device automatically locks the drum and arrests the fall. Self-retracting devices include self-retracting lanyards (SRLs), self-retracting lanyards with integral rescue capability (SRL-Rs) and self-retracting lanyards with leading edge capability (SRL-LEs) and hybrid combinations. SRLs are suitable for applications where during use the device is mounted or anchored such that possible free fall is limited to 2 feet or less.

Snap Hook – a connector comprised of a hook-shaped body with a normally closed gate or similar arrangement that may be opened to permit the hook to receive an object and, when released, automatically closes to retain the object.

Stairway – Means riser and reads that connect one level with another and includes any landings and platforms in between those levels.

Three-Points of Contact – A best practice while on a ladder to reduce fall potential by keeping two feet and one hand, or two hands and one foot in contact with the ladder always.

Toeboards – A low protective barrier that is designed to prevent materials, tools, and equipment from falling to a lower level, and protect employees from falling.

Unprotected Sides and Edges - Any side or edge of a walking-working surface (except at entrances and other points of access), where there is no wall, guardrail system, or stair rail system to protect an employee from falling to a lower level.

Warning Line System – A visual or physical warning on a roof from the edge to warn personnel that they are approaching an unprotected opening, roof side or edge, and which designates an area in which roofing work may take place without the use of guardrails, fall arrest, or safety net systems to protect employees in the area.

Walking-working Surface – Any surface, whether horizontal or vertical on which an employee walks or works, including, but not limited to, floors, roofs, ramps, bridges, runways, formwork, and concrete reinforcing steel but not including ladders, vehicles, or trailers, on which employees must be in order to perform their job duties.

V. Responsibilities

A. Risk Management

Risk Management will serve as the Program Administrator for the Elevated Work and Fall Protection Program, which includes:

1. Develop and update this program in accordance with applicable regulations and guidance documents.

2. Measure and evaluate the effectiveness of this program on an annual basis.

3. Approve the selection and use of fall prevention systems and equipment.

4. Develop program training and compile lists of authorized personnel who perform the duties of Competent Persons.

5. Verify program audit requirements are met and that appropriate follow-up takes place to correct deficiencies.

6. Advise and provide guidance on all matters pertaining to this program.

7. Verify that procedures to identify, eliminate or control new and existing fall hazards exists and is being implemented.

8. Verify that fall protection procedures are developed for all locations where active fall protection systems are used to control a hazard.

9. Perform investigations of all incidents and near misses relating to falls from heights or same level.

B. Supervisors

Supervisors or designee will fulfill the role as the Competent Person for fall protection, which includes:

1. Review and understand this program.
2. Assign Competent Persons to identify, evaluate, mitigate, or eliminated fall hazards.
3. Complete the fall protection and rescue plans where the elimination of fall hazards through passive fall protection systems are not feasible.
4. Shall ensure employees have proper fall protection equipment.
5. Verify that competent and authorized persons adhere to requirements of this program.

C. Competent Persons

Supervisors or designee will receive Competent Person training. Contractors are required to have Competent Persons onsite when their employees are exposed to falls hazards.

1. Shall be responsible for immediate supervision, implementation and monitoring of the program.
2. Shall conduct a fall hazard survey to identify potential fall hazards before the Authorized Employees are exposed to those hazards.
3. Shall identify, evaluate, and restrict workplace activities to control fall hazards.
4. Shall stop work and implement prompt corrective measures to mitigate fall hazards.
5. Shall review this program to determine if additional practices, procedures, or training is needed to be implemented before workplace activities continue.
6. Shall verify that Authorized Employees are trained, and rescue procedures have been reviewed.
7. Shall verify that adequate fall clearance is provided before persons work at height with fall arrest systems.
8. Shall participate in the investigation of all incidents related to falls at the same level or at heights.
9. Shall immediately remove from service all personal fall protection systems and components that are damaged.
10. Shall inspect and document all fall protection equipment annually, as required by manufacturer and applicable regulations.
11. Shall suspend or postpone elevated work during periods of inclement weather (i.e., high wind, rain, electrical storms) that may threaten worker safety.

D. Authorized Employees

Employees exposed to fall hazards shall be receive Authorized Employee fall protection training, including:

1. Shall be trained to follow procedures and instructions by Competent Persons regarding use of fall protection and rescue systems.

2. Shall be trained on when to notify Competent Person to unsafe or hazardous conditions, unsafe work practices that may cause injury.

3. Shall properly use, inspect, maintain, store and care for fall protection equipment, systems, and personal protective equipment (PPE), per manufacturer's specifications or applicable regulations.

4. Shall inspect all fall protection equipment prior to each use for defects or damage, shall notify the Competent Person of such damage, and not use the equipment until repaired or replaced.

5. Shall report incidents, near misses, or hazards resulting from fall protection systems immediately.

6. Shall not climb, stand, kneel, crawl, etc., on conduit, piping, cable trays, or other equipment that is not designed to support a person's body weight.

7. Shall notify Competent Persons of fall equipment that has been subjected to forces from a fall for removal from use according to the manufacturer's specifications.

8. Prevent slips and trips by maintaining walking working surfaces free of clutter, tools, and other debris.

E. Qualified Persons

Qualified Persons shall:

1. Have knowledge, through education or professional certification, of applicable fall protection regulations, standards, equipment and systems, and engineering principles.

2. Design, select and oversee the installation of fall restraint, fall arrest, work positioning, and horizontal/vertical lifeline systems.

3. Participate in the investigation of all incidents related to falls from heights.

4. Meet the qualifications of a Competent Person.

Personnel designing personal fall protection systems shall be a State of California Professional Engineer (PE).

F. Contractors

1. Must have a written fall protection program if work is required to be performed at elevated locations. The fall program shall be developed by a Competent Person and in accordance with applicable governmental regulations and this procedure. The program may be part of the Injury and Illness Prevention Program or maintained as a separate program.

2. Personal fall restraint, fall arrest, work positioning, horizontal lifelines, and vertical lifeline systems shall be designed and installed under the supervision of a California Professional Engineer.

3. Must submit a fall protection and rescue plan to OC San for approval and use of fall protection systems.

4. Shall attempt to work from ground level where possible. If not practical, the contractor shall identify fall hazards and reduce risks.

5. Shall provide a Site-Specific Safety Plan (SSSP) to Risk Management prior to commencement of work at elevated locations that addresses where fall protection may be required and how fall protection will be achieved.

6. Shall provide fall protection equipment and systems to their employees.

7. Shall verify the use, inspection, storage, and maintenance of fall protection equipment with the requirements outlined in this document and all other applicable regulations.

VI. Acceptable Control Methods

The hierarchy of controls listed below will be utilized to eliminate or reduce fall hazards. When elimination is not feasible, various engineering and administrative controls will be evaluated to determine appropriate personal protection against the fall hazard. Fall hazards and existing controls shall be periodically reassessed to determine if a greater level of protection can be applied or if the hazard can be eliminated.

Fall hazards in the workplace may be addressed using one or a combination of the following hierarchy of control methods:

1. Elimination – Eliminating the fall hazard or preventing exposure to a fall hazard is the most effective control measure and should be considered for existing hazards or during new construction. This can be achieved by modifying a structure, isolating the authorized person from the hazard, changing a process, substituting equipment, or using work procedures so that the authorized person is not exposed to the fall hazard.

2. Passive Fall Protection - If it is not possible to eliminate the risk of a fall, reduce the risk using passive fall protection equipment. Passive fall protection offers a greater level of protection than active fall protection systems since there is no reliance on the authorized person. Passive systems include guardrails, covers capable of supporting weight, scaffolds, and aerial lift devices. Note: Aerial lift devices require the use of a personal fall restraint system.

3. Personal Fall Restraint System – These systems allow the authorized person access to conduct their work but prevent them from reaching a point of where a fall could occur. The system is generally suited if the authorized person needs to work at the edge of a hazard, such as a roof’s edge or at a hatchway in a process area. The fall hazard shall be positioned a greater distance away as compared to the fixed length of lanyard.

4. Personal Fall Arrest System - If it is not possible to use the above options, the use of a personal fall arrest system (PFAS) to arrest a fall after it occurs shall be used. This system provides the maximum freedom of movement for workers to conduct work. In

the event of a fall, the fall will be arrested requiring the person to be self-rescued or be rescued.

5. Work Positioning System – These systems are different from a PFAS in that the length of the lanyard is shorter and rigged in such a way that will both restrict the range of movement of the authorized person and prevent falls of more than two feet. These systems secure the worker in place, allowing the authorized person to perform tasks with both hands. This requires the use of special harnesses and lanyards.

6. Administrative Controls - If none of the above measures are possible, or the risk of a fall remains, the risk shall be reduced using administrative controls to further reduce the risk of falling. These controls may include erection of a controlled access zone, warning line system, warning signs, training, or safety monitoring system. The use of controlled access zones, warning line systems and safety monitoring systems shall be approved by Division supervisors (or designee) and Risk Management before they are implemented. These controls attempt to increase worker awareness of fall hazard and alone should not be relied upon.

VII. Elimination

The preferred and best way to protect employees from falls is to remove or eliminate the hazard or substitute the hazard with a lower risk hazard. For example, locating equipment on ground level would not require employees to navigate a ladder or an elevated location and be subject to a fall. Elimination is best achieved during the design and construction phase of a project.

VIII. Passive Fall Protection Systems

A. Guardrails

Where standard guardrail protection is required, the following standards shall be followed including specifications of CCR, Title 8, Section 3209.

1. Guardrails shall consist of a top rail, midrail (or equivalent protection), and vertical posts. Midrails shall be approximately half-way between the top rail and floor, ground or working level. More than one midrail may be provided to afford greater protection.

2. Guardrails shall be installed with a vertical height of 42 inches to 45 inches.

3. The top rail shall be smooth surfaced throughout the length of the railing. The midrail shall be approximately halfway between the top rail and the floor, platform, runway, or ramp. The ends of the rails shall not overhang the terminal posts, except where such overhang does not constitute a projection hazard.

4. All guardrails and other permissible types, including their connections and anchorage, shall be designed for a live load of 20 pounds per linear foot applied either horizontally or vertically downward at the top rail.

5. Guardrails used around floor openings will be erected on all unprotected edges of the hole, except on the side with a cover that can be locked in a vertical position and can provide equivalent fall protection. Note: cover must be at least 42 inches in height.

6. Guardrails may be temporary or permanent. Temporary guardrails may relocatable or job-made, and typically used while more permanent systems are being installed or

when work is of short duration or at a space not is not intended as a permanent work area.

7. The gap or opening between guardrail section shall not exceed four inches horizontally.

Access and egress openings in guardrails shall be equipped with a swinging, self-closing gate or shall be offset so that a person cannot walk directly into the opening.

B. Toeboards

Toeboards shall be installed along guardrail systems where employees are expected to walk or work below the elevated location to mitigate the hazard of being struck by falling tools or equipment that are kicked or dropped from above. Toeboards shall meet the following requirements:

1. Shall be constructed of wood, concrete, metal, or other suitable material.

2. Shall not be less than 3.5 inches above the level of the walking working surface.

3. Shall not be installed more than ¼-inch above the walking working surface. They shall be solid or have openings no more than 1 inch in the greatest dimension.

C. Covers

Where covers are required, the following standards shall be followed in accordance with CCR, Title 8, Section 3212:

1. Shall be designed by a qualified person and capable of supporting at least 400 pounds or twice the weight of the employee, equipment and materials imposed on one square foot.

2. Shall be secured to prevent accidental displacement.

3. Covers in the process areas shall only be opened by authorized persons.

4. Covers used in temporary construction shall bear painted or stenciled sign stating: “Opening – Do Not Remove”.

5. Shall not project more than one inches above the surface.

6. Covers shall be hinged and/or removable. Hinged covers shall have sufficient handles for opening and closing. Removable covers shall be equipped with rated lifting eyes.

When covers are not in place, the opening shall be constantly attended by an authorized person or protected by guardrails.

D. Scaffolding

Scaffolds shall be provided for work that cannot be performed safely by employees on permanent working surfaces, except where work can be performed safely from a ladder.

Scaffolds shall meet the following requirements, as well as additional design and construction criteria of CCR, Title 8, Section 1637 and 1640-1655:

1. Shall be secured, anchored, or braced to prevent from swaying, tipping, or collapsing.

2. Shall be made of stress-grade lumber or strong metal.

3. Planking shall be secured in place and extend over the end supports at least six inches and no more than twelve inches.

4. Shall not be erected, moved, dismantled, or altered except under the supervision of qualified persons.

5. Shall not be altered by removing uprights, braces or supports unless other members providing equivalent strength are substituted.

6. Shall be inspected by a Competent Person prior to each shift's use to identify scaffolding that is incomplete or unsafe and shall be removed from service until repairs are made.

7. Shall be able to support its own weight and four times its maximum intended load.

8. Shall not be overloaded or allowed to accumulate equipment/materials to where load requirements would be exceeded.

9. Shall be free of slip and trip hazards.

10. Shall be include a ladder or stairway for safe access and egress.

11. Shall have guardrails installed along all unenclosed or exposed sides of the scaffold where the work level height is 6 feet or more.

12. Where there is a danger of tools, materials, or equipment falling from a scaffold and striking employees below, the following shall apply:
    a. The area below the scaffold shall be barricaded, and employees shall not be allowed to enter the restricted area, or
    b. Toeboards shall be installed along the edge to protect employees below.

13. Shall not be used during periods of inclement weather (i.e., heavy rain, lightning storms, wind).

14. Shall have the appropriate safeguards in place to prevent the scaffolding from being struck by mobile equipment.

Persons possessing a certification of competence in scaffold erection, dismantling and use issued by trade associations, state-approved apprenticeship or training programs or similar training programs will be considered as a qualified person.

E. Aerial Lift Devices

1. Employees shall be trained in the proper use of the equipment and per the manufacturers operating instructions.

2. Work performed in proximity to energized electrical lines shall be in accordance with OC San Electrical Safety Program (SOP-205) and the minimum clearance distances established by CCR, Title 8, Section 1612.1.

3. Inspection, maintenance, and repairs shall only be performed by a qualified person.

4. The lifting devices shall be inspected prior to each use. Records of inspections shall be maintained for at least 3 years and include the date, deficiencies found, corrective actions and person performing the inspection.

5. Guardrails must be installed on all aerial lift devices. If the guardrail is less than 39 inches high, an approved personal fall protection system shall be implemented. Guardrails must not be removed or defeated.

6. Employees shall not sit, stand, or climb on the guardrails or use planks, ladders, or other devices to gain greater working height or reach.

7. Aerial lift devices that can extend 5 feet or more in height shall be equipped with upper and lower control devices. Lower control devices will serve to safely lower the platform from ground level in the event of an emergency.

8. Aerial lift devices shall not be used on an inclined surface, unless approved by the manufacturer. Personnel lifts shall only be used on stable ground where there is no risk of overturning.

9. During periods of high winds, storms or when covered in ice, lift operation shall be suspended.

10. When moving vehicles are present, the immediate work area shall be marked with warning devices (i.e., flags, cones) or barricades.

11. The number of employees in the personnel lift shall not exceed the safe working load.

12. Each employee working from a boom lift shall be protected from falling by a personal fall restraint system attached to anchor point designed to meet regulatory requirements.

13. OSHA currently does not require the use of personal fall restraint systems when operating scissor lifts. However, most scissor lift manufacturers highly recommend the use of restraint systems during operation. Certified anchorage points are provided in scissor lifts by the manufacturer. As such, OC San requires that employees operating scissor lifts be protected by a personal fall restraint system.

IX. Personal Fall Protection Systems

A. Personal Fall Restraint Systems

1. Fall restraint and horizontal/vertical lifeline systems shall be designed and installed under the supervision of a California Professional Engineer.

2. Fall restraint systems shall be limited to flat or low sloped working surfaces.

3. The fall restraint system shall include anchorage, connecting devices (lanyard/lifeline) and full body harnesses. Only approved connecting devices and full body harnesses are permitted.

4. The connecting device shall be of sufficient length to allow movement of the authorized person only as far as the sides of the working level or working area. The authorized person shall not be capable of reaching the fall hazard.

5. The connecting device may only be connected to the back D-ring of the fully body harness.

6. Non-certified anchorages are not permitted for horizontal or vertical lifeline systems.

B. Personal Fall Arrest Systems

1. Fall arrest systems shall be designed and installed under the supervision of a California Professional Engineer.

2. The fall arrest system shall be designed such that authorized person subjected to a fall shall not strike an obstruction or encounter a lower level or object.

3. The fall arrest system shall include anchorage, connecting devices (lanyard), deceleration device and full body harnesses. OC San employees must also have a descent control device attached to their full body harness. All equipment must be approved by Risk Management.

4. The connecting device shall be of sufficient length to allow movement of the authorized person only as far as the sides of the working level or working area. The authorized person shall not be capable of reaching the fall hazard.

5. The connecting device may only be connected to the back D-ring of the fully body harness.

6. Anchorages shall be independent of those being used to support or suspend platforms, and capable of supporting at least 5,000 pounds per employee attached or at least two times the maximum arresting force. *Note: Rescue system anchorage shall be capable of sustaining 5,000 pounds per employee or five times the intended load.*

7. The systems must be rigged so that employees cannot free-fall more than 6 feet or contact any lower level, and where applicable the anchor point shall be positioned at a level higher than the employee’s waist.

8. The system shall be designed to bring an employee to a complete stop and limit maximum deceleration distance an employee travels to 3.5 feet (shock-absorbing lanyards).

9. The system shall limit maximum arresting force on an employee to 1,800 pounds and withstand twice the potential impact energy of an employee free-falling 6 feet or the free fall distance permitted by the system, whichever is less.

10. Personal fall arrest systems and components subjected to impact loading will be immediately removed from service and will not be used again for employee protection

until inspected by a Competent Person and determined to be undamaged and suitable for re-use according to the manufacturers' specifications.

11. Personal fall arrest systems shall be inspected at least two times per year by a Competent Person. The date of the inspection shall be documented.

12. Any portion of a system involved in a fall will be taken out of service and replaced.

13. Personnel shall avoid carrying tools or sharp objects in their front or back pockets. Should a fall occur, these objects may become a puncture hazard.

C. Work Positioning Systems

1. Work positioning systems shall be designed and installed under the supervision of a California Professional Engineer.

2. Work positioning devices shall be rigged such that an employee cannot free fall more than two feet.

3. The use of non-locking snap hooks is prohibited.

4. Anchorage points for positioning device systems shall be capable of supporting at least two times the intended load or 3,000 pounds, whichever is greater.

X. Personal Fall Protection Equipment

A. Body Harnesses

1. Only ANSI-approved full body harnesses shall be used for personal fall protection systems.

2. Body harnesses shall be properly fitted to the user.

3. The full body harness shall be equipped with a descent control device for rescue.

4. The weight limit of the harness and other system components shall be determined and not exceeded. Weight limit is determined by calculating the body weight of the user and weight of any tools and materials being carried.

5. All full body harnesses must come equipped with both a back and front "D-ring".

6. Body or safety belts are not permitted for use as part of a personal fall protection system.

7. Harnesses should be equipped with suspension trauma safety straps.

B. Lanyards

1. Only ANSI-approved lanyards shall be used for personal fall protection.

2. Lanyards used for fall protection shall not exceed 6 feet in length and shall not exceed the distance from the anchor to the level below.

3. Lanyards shall be connected to secure anchor points in such a manner that will limit an employee free fall distance to 6 feet or less.

4. Lanyards shall be protected from abrasions, cuts, or deterioration caused by ultra-violet light, dirt, adverse weather conditions and chemicals.

5. Synthetic rope lanyards shall be rated to support at a minimum 900 pounds.

6. Lanyards with a shock absorbing device shall be used with the lanyard to reduce fall arresting forces to 500-600 pounds.

7. Lanyards shall be free from knots.

8. Lanyards shall not be tied back to themselves, except where designed to do so and approved by a qualified person.

9. Self-retracting lanyards shall only be attached using rated shackles or carabineers.

10. Lanyards shall only be connected to the “D” ring on a harness.

C. Self-Retracting Devices (Lifelines/Lanyards)

1. Only ANSI-approved self-retracting devices shall be used for personal fall protection.

2. Self-retracting devices that automatically limit free fall distance to 2 feet or less shall be capable of sustaining a minimum tensile load of 3,000 pounds applied to the device, with the line in the fully extended position.

3. Self-retracting devices that do not limit free fall distance to 2 feet or less shall be capable of sustaining a minimum tensile load of 5,000 pounds applied to the device, with the line or lanyard in the fully extended position.

4. Self-retracting devices shall not be used on horizontal or vertical lifeline systems unless the length of the lifeline on the drum of the device will not permit the worker to reach the hazard even when fully deployed.

5. Each employee shall be attached to a separate self-retracting device.

6. Self-retracting devices shall be protected against being cut or abraded.

D. Anchorage Systems

1. All anchorages shall be designed and certified by a California Professional Engineer regarding strength, location, and compatibility with fall protection equipment.
    a. Anchorage points for personal fall arrest systems shall be capable of supporting 5,000 pounds per employee attached.
    b. Anchorage systems for personal fall restraint systems shall be capable of supporting 4 times the intended load.
    c. Anchorage systems for horizontal lifeline systems shall be capable of supporting two times the maximum tension developed in the lifeline during a fall. The number of persons attached to a horizontal system shall be used in determining the maximum tension in the lifeline.

d. Vertical lifelines shall have a minimum breaking strength of at least 5,000 pounds.

2. The anchorage systems are to be inspected for physical damage by the user prior to each use and a documented inspection at a minimum frequency of 5 years and more frequently if environmental conditions warrant.

3. The correct placement of anchorage systems for personal fall arrest should be installed at or above shoulder height to reduce the fall distance. The anchor point should be in a manner to minimize swinging, should not be affected by the environment or contamination, and should prevent contact with lower level or an object.

4. The following may never be used as an anchor point:
    a. Top rails, midrails or vertical posts associated with a guardrail system
    b. Handrails or stair rails
    c. Ladders, except approved ladder safety systems
    d. C-Clamps
    e. Piping or conduit
    f. Wood structures
    g. Unistrut support systems

E. D-Rings and Snap hooks

1. D-rings and snap hooks shall have a minimum tensile strength of 5,000 pounds.

2. D-rings and snap hooks shall be proof-tested to a minimum tensile strength of 3,600 pounds without cracking, breaking, or taking permanent deformation.

3. Snap hooks shall be of locking-type designed and used to prevent disengagement.

4. Snap hooks shall not be used unless they are a locking type and designed for the following connections:
    a. Directly to webbing, rope, or wire rope.
    b. To other snap hooks.
    c. To a D-ring to which another snap hook or other connector is attached.
    d. To a horizontal lifeline.
    e. To any object that is incompatibly shaped in relation to the snap hook.
    f. D-rings and snap hooks shall have a minimum tensile strength of 5,000 pounds.
    g. Lanyard snap hooks shall not be wrapped around anchor points and connected back to the lanyard, except where designed for such use.

XI. Inspection, Maintenance and Storage

Fall protection equipment shall be inspected by the authorized person before each use to verify that it has not sustained any wear or damage that would require removal from service. These inspections are visual only, and not documented.

Fall protection equipment (including rescue equipment) shall be inspected twice annually by a Competent Person to verify the equipment is safe for use. The inspections shall be documented, and copies retained by the Division.

Horizontal and vertical lifelines shall be inspected prior to each use, and not to exceed annually for any degradation, and if necessary, replace damaged or worn parts. Check torque on any bolts against specification.

Inspections shall look for illegible or missing tags, elements affecting fit or function, defects or damage to hardware including cracks, sharp edges, corrosion, chemicals, elongation, alteration, heat, or excessive wear. Records of inspections shall be maintained throughout the service life of the equipment.

If inspections reveal damage or determined to be inadequate for service shall be tagged so equipment will not be returned to service. The Competent Person shall destroy the equipment.

The Competent Person shall verify that the equipment is maintained according to the manufacturer's instructions.

Equipment shall be stored in a manner that protects it from exposure to any conditions that could result in damage.

Anchorage systems shall be inspected by the authorized person prior to each use and by a qualified person or Competent Person at least annually or in accordance with the manufacturer's instructions. Inspections by qualified or Competent Persons shall be documented.

Damaged anchorages shall be repaired or replaced and recertified by a qualified person.

Anchorage inspections shall look for cracks, deformation or bending in the structure around the anchorage or if the connection is unstable or loose.

Equipment involved in a fall arrest incident must be taken out of service immediately and handled according to the manufacturer's instructions. Retractable lifelines/lanyards must be sent back to the manufacturer for repair and re-certification.

The service life of harnesses and lanyards is determined by the manufacturer and shall be discarded upon expiration. This information is found on a tag located on the device itself.

Fall protection equipment must be used in accordance with manufacturer instructions, including weight and size limitations, and must not be altered in any way without written manufacturer authorization.

XII. Roofs

Guardrail systems shall be provided for work within 6 feet of the roofs edge. When intermittent work is being performed, an approved fall restraint/arrest system may be implemented.

Intermittent refers to less than four times per year. Toeboards shall be installed at guardrail locations. Guardrails may be permanent or temporary. Routine walkways should be identified on the roofs. Parapet walls meeting the height and strength requirements of a guardrail are an acceptable form of fall protection.

Guardrails shall extend at least 6 feet beyond the areas occupied by employees accessing, servicing, or repairing permanently mounted rooftop equipment.

When roof access is provided along the roof edge, guardrails shall extend 6 feet on both sides along the roof edge. When roof access is provided through a roof hatch, guardrails shall be provided around the access hatch, except along the side with the hatch cover. A swinging gate shall be provided. Roof access and equipment hatches shall be protected according to Section X.

Personnel who need to travel beyond the protection of the guardrails must be protected by a personal fall arrest or restraint system.

Roof work shall be prohibited during lightning storms, heavy rain, high winds, or dense fog conditions. Roof work shall be prohibited after dusk, except during emergency repairs or planned work where all appropriate safety precautions have been implemented in advance (i.e., portable lighting). Use of a personal flashlight is acceptable as a back-up only.

If personal fall protection is utilized, provisions need to be made to protect people below from falling object hazards. This may include delineating surfaces below the elevation location or positively securing equipment/tools on the roof.

Skylights shall be protected according to Section XIII.

XIII. Skylights

Employees approaching within 6 feet of any skylight shall be protected from falling through the skylight via skylight screens, guardrails, or personal fall restraint systems.

Skylight screens may be installed above or below the skylight. *Note: when screens are installed below the skylight, the fall shall not impose an impalement hazard from the broken skylight to the worker who has fallen through the skylight and is lying on top of the screen.*

1. Skylight screens shall meet the strength requirements for a cover.

2. Skylight screens installed above the skylight shall not deflect downwards sufficiently to break the glass causing injury to the employee.

3. Skylight screens installed above the skylight shall have grill work no more than 4 inches by 4 inches or of slate work with openings more than 2 inches wide.

4. Skylight screens installed below the skylight shall have grill work with openings less than 12 inches in the least horizontal dimension.

XIV. Holes and Openings

A. Holes

Holes greater than 2 inches shall be protected by a cover, guardrail, or equivalent on all open sides.

Holes through which materials or tools may fall and create a hazard, or which a person's body may contact dangerous moving parts, shall be completely covered, except where hoppers, guardrails, or gratings less than 1 inch by 5 inches are installed.

Holes through which power transmission equipment passes may be guarded by toeboards only, provided that the opening is less than 12 inches in the least dimension.

B. Openings

Openings in the floor or roof that are greater than 12 inches in the least horizontal dimension shall be provided with a cover and/or guardrail system.

The following fall protection systems shall be implemented when the cover is removed:

1. If personnel or equipment are required to pass through the opening, temporary or permanent guardrails shall be installed around the cover before the cover is removed.

2. If the opening is used to facilitate inspections, gauging, servicing, sampling, or cleaning activities, temporary guardrails or personal fall restraint systems shall be installed before the cover is removed.

3. Fall protection gratings, which reduce the overall size of the opening to less than 12 inches, may be installed below the cover. The gratings reduce the severity of injury from a fall hazard to a trip hazard. The grating is not capable of being walked on but prevents falls to a lower level.

Openings in a wall that are at least 30 inches high, and 18 inches wide shall be protected by a cover and/or guardrail. When the cover is removed, guardrails systems or personal fall restraint systems shall be in place before the cover is removed.

XV. Elevated Platforms

Platforms shall be provided for every permanent elevated work location, where there is machinery, equipment or materials which are operated or frequently repaired, serviced, adjusted, or otherwise handled.

Platforms shall be installed with standard guardrails and toeboards on all sides exposed to a fall hazard.

Personal fall protection is not required when working on a platform equipped with standard guardrails, except where employees are required to perform work outside of the guardrail system, as such personal fall protection shall be utilized. Anchor points shall be certified, and an approved fall protection system used.

All fixed ladders shall have self-closing swinging gates at top of ladders. Chains are not an acceptable substitute for ladder gates.

Holes and openings in the platform shall be protected according to Section XIV.

XVI. Roofing Operations, Leading Edge Work and Precast Concrete Erection

Employees shall be protected from falls to a lower level by guardrail systems, personal fall arrest systems, body positioning devices, warning line systems, or controlled access zones.

Warning line systems shall be designed and constructed per the following and in accordance with CCR, Title 8, Section 1730:

1. Employees shall be trained and instructed on such use.

2. Warning lines shall be installed with rope, wire, or similar material, and flagged with highly visible material hanging from the line no more than 6-foot intervals.

3. Warning line shall be installed no less than 6 feet from the roof edge.

4. Warning Line shall be rigged and supported in such a way that its lowest point including sag is no less than 34 inches from the walking surface and its highest point is no more than 39 inches from the walking surface.

5. After being erected warning line stanchions shall be capable of resisting without tip over a force of at least 16 pounds.

6. Warning line shall have a minimum tensile strength of 500 pounds and after being attached to the stanchion, shall be capable of supporting 16 pounds without breaking.

7. No work or work-related activity is to take place in the area between the warning line and the edge.

8. The use of warning lines closer than 6 feet from the edge is not permitted as substitute for conventional fall protection for work other than roof construction/repair.

Controlled access zones shall be designed and constructed per the following and in accordance with CCR, Title 8, Section 1671.2:

1. Access to areas where leading edge and other operations are taking place shall be controlled by a control line or other means to restrict access.

2. Signs shall be posted to warn unauthorized employees to stay out of the controlled access zone.

3. Lines shall be erected no less than every 6 feet or more than 25 feet from the unprotected edge, except when erecting precast concrete, the control line may be extended to no more than 60 feet, or half the length of the member being erected.

4. The control line shall extend parallel along the entire length of the unprotected edge.

5. The control line shall be attached on each side to a standard railing or wall, or securely anchored.

6. Control lines may consist of rope, wires, tape or equivalent.

7. Each line shall be flagged or marked at no more than 6-foot intervals with highly visible material.

8. The control line shall be rigged and supported that is installed and maintained between 39 and 45 inches from the working level.

9. Each line shall have a breaking strength of 200 pounds.

10. Each employer shall designate a Competent Person (safety monitor) to monitor the safety of other employees. The safety monitor shall:
    a. Be competent to recognize fall hazards
    b. Warn employees when it appears they are or have become unaware of a fall hazard.
    c. Stay within visual distance of the employee and maintain communication with employees being monitored.
    d. Have no other responsibilities except to serve as the safety monitor.
    e. Ensure that only employees covered by the fall protection plan are permitted in the controlled access zone.

A fall protection plan must be submitted to Risk Management for approval of personal fall arrest systems, body positioning devices, warning line systems or controlled access zones.

XVII. Excavations and Trenches

Excavations and trenches 6 feet or more in depth shall be protected by fencing, barriers (i.e., concrete k-rail, a-frame barrier, or roadway barricade), guardrail system, or combination thereof. *Note: Sheet pile, trench box, or slide rail system manufacturers may permit the installation of guardrails systems.*

The excavation Competent Person shall determine the degree of hazard and implement an effective method of control. Additional hazards (i.e., traffic, pedestrians) should be included in the control method selected.

Personnel shall travel directly to the point of entry of the excavation.

Protection shall be provided to protect employees from loose rock or soil that could pose a falling hazard. Spoil piles shall be maintained no closer than 2 feet from the excavation edge.

A stairway, ladder, ramp, or other safe means of egress shall be in trench excavations that are 4 feet or more in depth to require no more than 25 feet of lateral travel for employees.

Equipment operators shall maintain three points of contact when climbing in or out of equipment. Operators shall always face the equipment.

XVIII. Variance for Temporary Opening for Manholes

Manholes located throughout the OC San treatment plants, pump stations and collection system which are briefly opened to perform visual inspection can be performed without a guardrail system or personal fall protection, given all the following requirements are met:

1. The manhole can be removed using a tool designated for such removal (i.e., manhole puller).

2. The inspection is of short duration (less than 2-3 minutes).

3. Only a visual inspection is performed and does not require tools, equipment, or other materials to break the plane of the manhole.

4. The opened manhole must not be left unattended at any time during inspection.

5. The buddy system is used, meaning one employee removes the manhole and performs the inspection while a second employee is present in the work area to keep unauthorized persons away and to initiate emergency notification procedures for a fallen employee, should a fall occur.

The manhole cover should only be removed enough to perform visual inspection and return the manhole cover to the closed position as soon as the inspection is complete.

If the manhole is to remain open longer than the 2-3 minutes or tools, equipment and other materials breaks the plane of the manhole, a temporary manhole cover, guardrail system, barricade or personal fall protection system shall be implemented.

XIX. Hoisting Personnel

Hoisting personnel is prohibited except where it can be demonstrated that the erection, use or dismantling of conventional fall protection (i.e., ladder, aerial lift device, scaffold, would be more hazardous or is not possible based on structural design or worksite conditions.

Personnel platforms used to hoist employees shall:

1. Qualified person shall design the personnel platform and attachments.

2. Platform shall be designed to prevent tipping during employee occupant movement.

3. Personnel platform shall be capable of support its own weight and at least five times the maximum intended load.

4. Personnel platform shall be equipped with a guardrail system and personal fall arrest system.

The hoisting equipment shall be uniformly level, within one percent of level grade, and located on footing that a qualified person has determined to be sufficiently firm and stable. The hoisting equipment, where equipped with outriggers or stabilizers, shall have them all extended and locked.

Total load (platform, hook, load line and rigging) shall not exceed 50% percent of the rated capacity for the radius and configuration of equipment.

Hoisting personnel without a personnel platform is prohibited. When the personnel platform is in a stationary working position, the load, boom, swing, and secondary braking shall be engaged.

The hoist shall be equipped with devices to indicate extended length, anti-two-block devices, and controlled load lowering device. Hooks shall be closed and locked when attached. Shackles shall have retaining pin to prevent accidental removal.

Materials and tools shall be secured to prevent displacement.

Trail lifts and inspections shall be performed prior to lifting personnel. The trail lift shall be conducted unoccupied and throughout the distance personnel are to be moved to. Visual inspections shall be completed immediately prior to each lift.

Hoisting shall be performed in a slow and controlled manner. Occupants must keep all body parts in the platform during movement. Personnel shall not be hoisted during high winds, rain, or lightning events.

Pre-lift meetings shall be held prior to the hoisting personnel to discuss applicable requirements of CCR, Title 8, Section 1616.6, which includes the equipment operator, signal person, hoisted personnel, and management.

XX. Training

A. Competent Persons

Training shall include:

1. Fall protection hierarchy of controls.
2. Applicable fall protection regulations and standards.
3. How to survey fall hazards.
4. Roles and responsibilities.
5. Inspection of equipment components and systems.
6. Fall protection assessments and determining if a system is safe or unsafe for use.
7. Implementing fall protection and rescue procedures.
8. Equipment and practices applicable to fall protection.
9. Inspections and performance limitations of equipment.
10. Capable of identifying fall hazards and completing fall protection plans.
11. Calculating maximum deceleration and arrest distances for fall arrest systems.
12. Methods to control free fall and arresting forces.
13. Principles of 100% fall protection and how to remain protected while transferring from one system to the other.

B. Qualified Persons

Qualified person training shall include:

1. Fall protection hierarchy of controls.
2. Applicable fall protection regulations and standards.
3. Roles and responsibilities.

4. Equipment and practices applicable to fall protection.
5. Inspections and performance limitations of equipment.
6. Identification of fall hazards.
7. Conducting fall hazard surveys, fall protection and rescue plans.
8. Fall protection system selection.
9. Calculation of required clearance and deceleration distances for fall arrest systems.
10. Designing, selecting, and analyzing anchorages.
11. Assessing system combability.
12. Designing new and evaluating existing horizontal and vertical lifelines.
13. Documented inspection of equipment.
14. Determining swing and impact forces.
15. Developing engineering system standards.
16. Accident/incident investigations.

C. Authorized Persons

Personnel performing work at heights shall be trained in specific fall protection applications and equipment associated with their job. Training shall include the following:

1. Roles and responsibilities.
2. Recognition of fall hazards.
3. Applicable fall protection regulations and standards.
4. Safe work practices including fall prevention and control methods.
5. Use and application of fall protection equipment.
6. Requirements for selection, inspection, and maintenance.
7. Requirements for rescue and fall protection and rescue procedures.
8. Any specific manufacturer’s instructions for equipment.
9. Employees shall demonstrate an understanding of the training and use of equipment applicable to their job. This may be accomplished through a documented exam or documented practical demonstration.

D. Authorized Rescuers

Authorized rescuers shall receive training before they are exposed to a fall hazard or a potential rescue event. Rescue training shall include:

1. Fall hazard recognition.
2. Fall protection hierarchy of controls.
3. Applicable fall protection and rescue regulations and standards.
4. Roles and responsibilities.
5. The use of fall protection and rescue procedures.
6. Location rescue system assembly and use.
7. Before use inspection of local rescue systems.
8. Equipment and practices applicable to work.
9. Instruction and performance limitations of equipment.
10. Capable of identifying fall hazards and completing fall protection plans.
11. Calculating maximum deceleration and arrest distances for fall arrest systems.
12. Methods to control free fall and arresting forces.
13. Principles of 100% fall protection and how to remain protected while transferring from one system to the other.

E. Aerial Lift Devices

Lift operators shall be trained by a designated Competent Person. Only trained and authorized persons can operate an aerial lift. Training should include:

1. Explanations of electrical, fall, and falling object hazards.
2. Procedures for dealing with hazards.
3. Recognizing and avoiding unsafe conditions in the work setting.
4. Instructions for correct operation of the lift (including maximum intended load and load capacity).
5. Demonstrations of the skills and knowledge needed to operate the lift before operating it on the job.
6. When and now to perform inspections.
7. Manufacturer’s requirements.

F. Retraining

Retraining will be provided if any of the below conditions are met.

1. when changes in the workplace or new installations render previous training obsolete.

2. when changes in the types of fall protection equipment to be used render previous training obsolete.

3. when workplace observations or incidents indicate that employees have not retained an understanding of the skills acquired through their initial training.

4. when an accident occurs during aerial lift use.

5. when workplace hazards involving an aerial lift are discovered.

6. when a different type of lift is used.

Supervision, with consultation of Risk Management, will determine if retraining will be assigned to an individual, group or Division of employees.

The retraining may be formal, informal, onsite, online or distributed via SAFE Bulletin or Safety Gram.

G. Training Schedule

If none of the conditions listed above in the retraining section are applicable, the duration for retraining shall be conducted as follows:

1. Authorized persons every 2 years

2. Competent Persons every 2 years

3. Rescue persons every 2 years with annual drill

XXI. Falls on Same Level

To prevent falls on the same level, authorized persons shall implement the following controls:

1. Maintain clear, tidy work areas free of trash, debris, and tools.

2. Wear proper footwear with good traction.

3. Perform housekeeping of work areas frequently.

4. Maintain floors free of oil and grease.

5. Clean up spills promptly, including deployment of signs and/or cones until the spill is cleaned up.

6. Cover or secure cables, conduits or piping that cross walkway.

7. Maintain adequate illumination at walking working surfaces. Use a flashlight or headlight when working at night or navigating tunnels.

8. Mark/highlight change in elevations or transitions with anti-skid paint, coatings, or strips.

XXII. Fall Protection Plan

A fall protection plan should be developed where passive fall protection systems are impractical or creates a greater hazard. The plan should be completed for all fall restraint, fall arrest, work positioning and horizontal/vertical lifeline systems, as well as during non-routine tasks requiring bypass of existing fall protection systems.

The fall protection plan will be completed by a Competent Person, developed specifically for the work area where fall protection is required, and completed prior to the start of work.

The plan shall be submitted to Risk Management for review and approval, and contain the following:

1. Description of the fall hazard.

2. Description of measure that will be implemented to reduce or eliminate the fall hazard with personal fall protection systems, scaffolding, ladders, aerial lift devices, warning line systems or controlled access zones.

3. Qualified Person shall determine structures are safe to access and calculate anchorage limitations or requirements, where applicable.

4. Competent Person to calculate total fall distance for protection of employee using fall arrest equipment to prevent contact with the ground or lower-level structure, where applicable.

5. Impact of adverse weather conditions such as wind and rain during elevated work.

6. Post-Fall Emergency Response - Rescue plan.

XXIII. Rescue Plan and Procedures for Falls

A. General

Before work beings, necessary rescue equipment should be determined and made available at the work area.

Outside emergency services should not be relied upon to provide rescue services. Rescue shall be provided by trained workers or a third-party rescue provider. If a third-party rescue provider is used, they must be onsite during work requiring rescue.

Appropriate emergency rescue procedures shall be in place for an emergency rescue of a person using a fall-arrest system or aerial lift device, as follows:

1. Rescue shall be provided in less than six minutes to prevent suspension trauma. For most work, this shall necessitate a full-time safety watch.

2. If a rescue cannot be performed in less than six minutes, the fall-arrest system shall have a device that automatically lowers the person to the ground safety.

3. If compliance with the above cannot be achieved, a safe and alternative working procedure shall be used.

4. Emergency rescue procedures shall consider the immediate rescue of a person after an arrested fall without the need to rely on emergency services or appropriately trained and competent standby rescue teams.

5. The rescue plan shall be included as part of the fall protection plan. The following are examples of rescue that may be used:
    a. Self-Rescue
    b. Assisted Self-Rescue
    c. Assisted Rescue (unconscious)
    d. Scissor or Boom Lift Rescue

B. Confined Space Entries

Confined spaces that are 5 feet or more in depth shall require the use of a mechanical retrieval device for both fall arrest and rescue. Exception - The required use of a mechanical retrieval device can be circumvented, if the entry supervisor can justify that its use poses a greater hazard to the entrant(s).

The confined space entry supervisor shall be responsible for developing an alternate method for fall protection and rescue as well as provide the required fall protection, rescue equipment and personnel if a mechanical retrieval device is not used.

C. Suspension Trauma

Suspension trauma occurs when a person has an arrested fall and is suspended in a vertical position, which causes the body harness straps to put pressure on veins in the legs limiting return blood flow to the heart. When blood flow is restricted, the body slows the heart causing a person to faint which can occur in a few minutes. This can lead to renal failure and eventually death, depending on the person's body.

XXIV. Audit and Program Review

The Elevated Work and Fall Protection Program shall be reviewed annually to determine effectiveness and identify improvement opportunities based on performance and feedback mechanisms.

Any changes in the Elevated Work and Fall Protection Program shall be communicated to all affected employees

XXV. Recordkeeping

All records created or generated during this procedure shall be legible and stored in a way that they are readily retrievable in facilities or electronic document/content management systems that provide a suitable environment to prevent damage, deterioration, or loss. Records may be in the form of any type of media, such as hard copy or electronic media. The OC San Records Retention Schedule is the official procedure governing the retention, retirement, and destruction of OC San records. Document owners should use these schedules to determine the item and series that best fit their records. Document owners are responsible for ensuring that documents are properly marked, indexed, and filed for their projects or area of responsibility.

XXVI. Exceptions

This procedure does not apply when employees are inspecting, investigating, or assessing workplace conditions prior to the actual implementation of fall protection systems. Employees engaged in inspecting, investigating, and assessing workplace conditions before the actual work begins or after work has been completed are exposed to fall hazards for very short durations, if at all, since they are able to accomplish their work without going near the danger zone.

XXVII. References

California Code of Regulations (CCR), Title 8, Section 1670, Personal Fall Arrest Systems, Personal Fall Restraint Systems and Positioning Devices

CCR, Title 8, Section 1671.1, Fall Protection Plan

CCR, Title 8, Section 1671.2, Controlled Access Zones and Safety Monitoring Systems

CCR, Title 8, Section 1678, Extension Ladders

CCR, Title 8, Section 1730, Roof Hazards

CCR, Title 8, Section 3207, Definitions

CCR, Title 8, Section 3209, Standard Guardrails

CCR, Title 8, Section 3210, Guardrails at Elevated Locations

CCR, Title 8, Section 3211, Wall Openings

CCR, Title 8, Section 3212, Floor Openings, Floor Holes and Roofs

CCR, Title 8, Section 3213, Service Pits and Yard Surface Openings

CCR, Title 8, Section 3214, Stair Rails and Handrails

CCR, Title 8, Section 3271, Openings

CCR, Title 8, Section 3272, Aisles, Walkways and Crawlways

CCR, Title 8, Section 3275, Scaffolds

CCR, Title 8, Article 24, Elevating Work Platforms and Aerial Devices, Sections 3636 - 3648

XXVIII. Revision History

Version	Date	By	Reason
1.0	08/24/2008	Carnahan, Pat	New
2.0	04/15/2014	Parker	Program Update
3.0	08/13/2018	Frattali, John	Program Update
4.0	01/15/2019	Frattali, John	Annual Program Update – no changes
5.0	11/02/2020	Frattali, John	Periodic Update – Refer to Program Change Log
6.0	11/19/2021	Frattali, John	Annual Program Update – no changes