



**SAN JOSÉ STATE
UNIVERSITY**

Fall Protection Program

San José State University
One Washington Square
San José, California

Facilities Development and Operations Department
Environmental Health and Safety

July 09, 2012

Fall Protection Program

1) Purpose and Scope

The University is dedicated to the protection of employees potentially exposed to the hazards of working from heights. Fall protection is required when there is the potential of falling four or more feet to a lower level or when working above hazardous equipment.

2) Standards, Regulations and References

- a) CCR, Title 8, Subchapter 4. Construction Safety Orders
Article 24. Fall Protection
Section §1669. General. Fall Protection
Section §1670. Personal Fall Arrest Systems, Personal Fall Restraint Systems and Positioning Devices.
- b) CCR, Title 8, Subchapter 4. Construction Safety Orders
Article 16. Standard Railings
Section §1620. Design and Construction of Railings.

3) Roles and Responsibilities

a) The University

The University is committed to and has a duty to provide a safe and healthful work environment for employees and contractors from the hazards of working from heights.

b) Environmental Health and Safety Section

Environmental Health and Safety will ...

- i) Establish, implement and maintain the Fall Protection Program that is designed to eliminate or minimize employee exposure to fall hazards when working from heights.
- ii) Perform an employee exposure assessment to identify the employees who are at risk with the collaboration of each department's management and document the findings.
- iii) Develop and implement campus-wide training requirements and materials. Employee information and training are provided at the time of initial assignment and annually thereafter.
- iv) Maintain a record of training given to employees. Records will be maintained for three years.
- v) Maintain a record of Personal Fall Arrest System inspections for three years.
- vi) Review and approve the Fall Protection Plans as required when conventional methods of fall protection are not feasible. Maintain a record of completed Fall Protection Plans for three years.
- vii) Review and update the Fall Protection Program annually.

c) Department Management

Each affected Department will ...

- i) Collaborate with the Environmental Health and Safety Section in the employee exposure assessment process to identify employees who work from heights.
- ii) Ensure that affected employees received proper training prior to beginning work that exposes them to potential fall hazards.
- iii) Develop and enforce work practices and methods designed to control or eliminate the risk of working from heights.
- iv) Provide the necessary work implements, such as personal fall arrest systems, tools, gloves, and personal protective equipment to employees that will enable employees to perform their work safely.
- v) Issue Fall Protection Plans where conventional fall protection methods are not feasible for working from heights.
- vi) Coordinate with Contractors that perform work onsite to ensure that they are provided SJSU Fall Protection procedures.

d) Employees

Every employee who is at risk of working from heights will ...

- i) Receive training.
- ii) Be provided with the necessary work implements, such as personal fall arrest systems, tools, gloves, and personal protective equipment, and to use them to perform their job safely.
- iii) Follow the prescribed work practices and methods designed to control or eliminate fall hazards.
- iv) Inspect fall protection equipment prior to usage.
- v) Inspect ladder and aerial lift vehicles prior to usage.
- vi) Report unsafe conditions and work practices to their supervisor.

4) Contractor Services

Contractors will coordinate with appropriate SJSU department management to ensure that the contractor is provided with SJSU Fall Protection procedures.

5) Program Audit

Environmental Health and Safety will perform an annual program audit and make improvements to the Fall Protection Program as conditions change.

6) Document History and Control

The San José State University Fall Protection Program described herein supersedes all prior written Fall Protection documents.

<i>Rev #</i>	<i>Document Revision History</i>	<i>Author</i>	<i>Reviewer</i>	<i>Date</i>
00	Revision No Change Initial Document	David Krack, Director Environmental Health and Safety		July 9, 2012
01				

The Fall Protection Program

The University is committed to and has a duty to provide a safe and healthful work environment for all employees and contractors from the hazards of working from heights.

1) The Fall Protection Program.

The Fall Protection Program is designed to eliminate or minimize the hazards of working from heights and includes the following key elements:

- a) Determination of employee exposure
- b) Implementation of control methods including:
 - i) Use of Conventional Fall Protection Methods.
 - ii) Fall Protection Plans.
- c) Employee Training.
- d) Recordkeeping
- e) Safe Work Practices

2) Exposure Determinations

An exposure determination was made of staff positions by the Environmental Health and Safety Section. It was determined that the following classes of employees have an occupational exposure to working from heights and are subject to the SJSU Fall Protection Program.

#	<i>Department Building Location</i>	<i>Job Title of Employees at Risk of Exposure</i>	<i>Nature of Exposure Risk</i>
	Facilities Development & Operations	Grounds Keepers Painters HVAC / Energy Control Electricians Plumbers Carpenters	Roof Access Working from ladders and aerial lifts
	Student Housing Services	Painters HVAC /Energy Control Specialists Electricians Plumbers Carpenters	Roof Access Working from ladders and aerial lifts
	Athletics	Photographers	Working from ladders and aerial lifts.

3) Methods of Implementation and Control

a) Conventional Fall Protection Methods

Conventional fall protection methods will be used. Conventional methods include:

- i) Standard guardrails, such as provided by perimeter guard rails and scaffolding.
- ii) Ladders.

- iii) Vehicle mounted work platforms, such as Aerial Lifts.
- iv) Use of Personal Fall Arrest Systems.
- v) Safety Net Systems.

b) Fall Protection Plans

- i) A Fall Protection Plan must be created when conventional fall protection is impractical or creates a greater hazard. The fall protection plan will document the reasons why the use of conventional fall protection systems is not feasible or why their use would create a greater hazard.
- ii) The Fall Protection Plan will identify each location where conventional fall protection methods cannot be used. These locations will then be classified as Controlled Access Zones.

4) Employee Training

All employees who work from heights greater than 7 ½ feet receive initial training at the time of assignment and annual refresher training.

- a) The key training elements include:
 - i) Classroom instructions and practical training which consists of pre-operational inspections and usage of the fall arrest and fall restraint equipment.
 - ii) Safe use of personal fall arrest and restraint systems which include limitations of the equipment, free fall distance, methods of use, proper anchoring, and how to don the equipment.
 - iii) Inspection and storage of the fall arrest and restraint systems.
 - iv) Roof fall protection procedures.
 - v) Ladder safety.
 - vi) Aerial lift safety.
 - vii) Fall prevention and safety procedures when working at elevated heights.
 - viii) Rescue procedures.
 - ix) The University's Fall Protection Program and procedures.
- b) Training is coordinated by San José State University, Environmental Health and Safety.

5) Recordkeeping

- a) Training Records
 - i) Records are retained for each employee upon completion of training. These documents will be kept for three years by Environmental Health and Safety, Industrial Studies, Room 134 B.
 - ii) The training records include:
 - (1) The dates of the training sessions.
 - (2) The contents or a summary of the training sessions.
 - (3) The names and qualifications of persons conducting the training.
 - (4) The names and job titles of all persons attending the training sessions.

- iii) Employee training records are provided upon request to the employee or the employee's authorized representative. Such requests should be addressed to San José State University, Environmental Health and Safety.
- b) Fall Protection Plan Records
Completed SJSU Fall Protection Plans will be retained for three years by Environmental Health and Safety.
- c) Personal Fall Arrest Inspection Records.
Completed SJSU PFAS inspection records will be retained for three years by Environmental Health and Safety.

6) Personal Fall Protection Equipment and Safe Work Practices.

- a) Personal Fall Arrest Systems are worn by employees when work is performed at elevations exceeding 15 feet above ground, water surface, or floor level below and where temporary guardrail protection is impracticable.
- b) Personal Fall Arrest Systems, when stopping a fall, must:
 - i) Be rigged such that an employee can neither free fall more than 6 feet, nor contact any lower level, and, where practicable, the anchor end of the lanyard shall be secured at a level not lower than the employee's waist;
 - ii) Bring an employee to a complete stop and limit maximum deceleration distance an employee travels to 3.5 feet.
 - iii) Anchorages used for attachment of Personal Fall Arrest equipment must be independent of any anchorage being used to support or suspend platforms and capable of supporting at least 5,000 pounds per employee attached.
 - iv) Lanyards and vertical lifelines shall have a minimum breaking strength of 5,000 pounds.
 - v) Body belts shall not be used as part of a Personal Fall Arrest System.
- c) Personal Fall Restraint Systems are worn by those employees whose work exposes them to falling in excess of 7 1/2 feet from the perimeter of a structure, unprotected sides and edges, leading edges, through shaft ways and openings, sloped roof surfaces steeper than 7:12, or other sloped surfaces steeper than 40 degrees.
 - i) Anchorage points used for fall restraint must be capable of supporting 4 times the intended load.
 - ii) If an employee's duties require horizontal movement, rigging must be provided so that the attached lanyard will slide along with the employee.
- d) Prompt rescue of employees in the event of a fall is necessary when employees are not able to rescue themselves.
- e) Each personal fall arrest system will be inspected not less than twice annually in accordance with the manufacturer's recommendations. The date of each inspection is documented.

7) Personal Fall Protection Equipment Inspection

- a) Fall protection system components must be stored away from corrosive materials, oils and solvents, moisture, heat, or any other substance that may cause damage.

- b) All personal fall protection equipment (fall restrain/fall arrest equipment-lifelines, lanyards, carabineers, rope grabs, harnesses) are inspected at least semi-annually and by the user prior to usage.
- c) Equipment shall be examined for signs of defect and physical damage. All hardware shall be examined for nicks, cracks, corrosion or distortion.
- d) Any equipment showing sign of defect, deterioration or alteration must not be used and must be discarded immediately.
- e) Only the equipment manufacturer or supplier can repair or recertify the equipment.

8) Equipment Inspection Guidelines:

a) Full Body Harnesses

- i) Inspect webbing and stitches for sign of defect and physical damage (cuts, excess wear, tears, knots, brittle spots, holes, melted spots, mold, undue stretching, pulled rivets, and loose, broken, or cut threads).
- ii) Inspect rivets, grommets, D-ring, and buckles for damage; make sure each connection completely closes and locks.
- iii) Look for the “Fall Indicator” or “tattle tale” webbing that will expose bright red or other colored fibers to alert the user to significant wear.
- iv) Harness subject to a fall must be discarded.

b) Lanyards and Lifelines

- i) Design for use by one person at a time.
- ii) Inspect double locking snap hook, impact indicator fold and threads for physical damage.
- iii) For retractable lanyard, test lanyard retraction and braking mechanism.
 - (1) Pull out several feet of lanyard and allow it to retract back into the unit; it should retract.
 - (2) Grasp above the impact indicator and give a sharp pull; it should stop abruptly.
 - (3) Look for the “Load Impact Indicator.” Discard the lanyard if the shock absorber or rip stitch has extended/unfolded or has arrested a fall.

c) How to Wear a Full Body Harness:

- i) Hold the harness by the back D-ring and shake to allow all the straps to fall in place.
- ii) Unbuckle the leg straps, if necessary.
- iii) Slip on the shoulder straps. The D-ring should be located in the middle of the back between the shoulder blades.
- iv) Connect legs straps.
- v) Tighten all buckles so the harness fits snugly, but allows full range of motion.
- vi) The chest strap must be in the mid-chest range 6 to 8 inches below the trachea but not below the sternum.
- vii) Check all buckles to ensure they're properly connected.

- viii) Check that all straps are snug and free of twists.
- ix) Hang the harness by the back D-ring when not in use.

9) Rescue Procedures

- a) A rescue plan must be implemented when using a fall arrest or fall restraint system. The plan must be specific to the work location and job being performed.
- b) If outside assistance is required (i.e. local fire department), verification and/or prior arrangement must be made to ensure rescuing capability and availability of equipment.
- c) All necessary equipment shall be readily available and inspected for proper operations before starting the work to ensure prompt rescue.
- d) In the event of a fall, the employee must be rescued immediately to prevent suspension trauma.
- e) For tasks where an employee must approach within 6 feet from an unprotected roof's edge, another employee must be present at all times to notify the proper individuals and activate the rescue plan in the event of a fall.
- f) Another employee is not required to be present at all times for aerial lift operation (articulating boom lift or cherry picker), if the task performed is not in an isolated area. However, in the event of a fall, the employee might not be able to summon for assistance. Another individual must be available at all times to monitor the employee's status and summon/provide prompt rescue if a fall occurs.
- g) In the event of a fall and the individual is not able to perform a self-rescue:
 - i) If possible and if it's SAFE to do so, lower the individual to ground level by SLOWLY and CAUTIOUSLY lowering the aerial lift.
 - ii) Elevate another employee to rescue the falling individual.
- h) If outside assistant (i.e. local fire department) is needed, contact University Police Department (UPD) immediately. Dial 911 from any campus phone or (408) 924-2222 if using a cell phone.

10) Aerial Lift Fall Protection Procedures.

Safe operating rules must be followed to prevent falls and the aerial lift from tipping over during operation. Comply with the following procedures at all time:

- a) Personal fall arrest equipment must be used during the operation of aerial boom lifts.
- b) All articulating aerial boom lift must contain an engineered anchor points with a minimum load capacity of 5,000 lbs. per person.
- c) Before operating lift, complete a pre-operation check, which includes the following:
- d) If there is more than one employees working on the project, ensure that all employees involved have received fall protection and aerial lift training.
- e) Inspect personal fall arrest equipment and aerial lift prior to using.

- f) Ensure fall arrest equipment is properly donned and lanyard is connected to designated anchor point on the lift.
- g) Ensure that the gate on the lift platform is closed and secured.
- h) Ensure all people in the immediate area are clear.
- i) Before elevating the lift basket, make sure the lift is on a level surface. Do not raise the basket into the air when on a grade or slope.
- j) Raise and lower the lift smoothly and with caution.
- k) While in motion, do not place any body parts outside the lift's basket. Stand with both feet firmly on the basket's floor. Do not get out of the lift's basket while still elevated.
- l) Never sit, climb or stand on the basket's guardrails or use planks, ladders or other devices to gain elevation.
- m) Make a visual check of all surroundings above and below the lift. Drive/Raise the lift only in the direction of clear, unobstructed view.
- n) Be alert to keep clear of overhead hazards such as light fixtures, electrical wires, and telephone line.
- o) Constantly monitor activity of other people and equipment and maintain a safe operating distance.
- p) Maintain a safe distance from obstacles, debris, drop-offs, holes, and depressions.
- q) When travelling, lower the lift basket to the travelling position.

11) Portable Ladders

- a) Any ladder that shows sign of significant defect or damage must not be used and be immediately tagged out with the following words: "Dangerous-Do Not Use." Ladders that are damaged beyond repair must be discarded immediately.
- b) Before using the ladder, perform a Pre-work Check by inspecting the following:
 - i) All parts and fittings on the ladder are secured.
 - ii) Non-slip surfaces are in place on the ladder rungs.
 - iii) Gripping safety feet are in place and secured on the ladder.
 - iv) The footing of the ladder is secured on a firm, level, and non-skid surface and the top of the ladder is placed against a solid, stationary object.
 - v) The ladder rungs (and employee's hands and shoes) are not greasy, muddy or otherwise slippery.
 - vi) Door openings near the ladder are fastened open, locked or guarded to prevent the door from opening into the ladder.
 - vii) Work area is sectioned off, if working near passageway or driveway.

- c) Always use both hands and face the ladder when ascending/descending.
- d) Do not over-reach or reposition the ladder while occupied.
- e) Use the 4:1 rule when setting up straight and extension ladders; for every 4 feet of ladder length, the base of the ladder should be 1 foot away from the base of the wall or supporting structure.
- f) When using ladder for roof access, the top of the ladder must extend at least 3 feet beyond the point of support.

12) Roof Fall Protection Procedures

- a) Access to a roof is restricted to trained and authorized personnel.
- b) Guardrails should be installed at locations where there is routine need for employees to be within 6 feet from an unprotected roof's edge (routine need means more than 4 times a year). The guardrails should extend at least 6 feet beyond the areas where the employees are working.
- c) For work along the roof's perimeter, evaluate whether the tasks can be done safely using an aerial lift. If the tasks cannot be performed safely using an aerial lift, fall restraint can be used.
- d) Due to the potential for a swing impact injury against the side of the building and the difficulty of rescue, fall restraint rather than fall arrest must be used when working within 6 feet from an unprotected roof's edge.
- e) For tasks where an employee must approach within 6 feet from an unprotected roof's edge, another employee must be present at all times to notify the proper individuals in the event of a fall.
- f) If works must be performed during nighttime or when visibility is poor (i.e. fog), sufficient lighting must be provided.
- g) Due to the potential fall hazard when working along the roof's edge/perimeter, an assessment shall be made to determine whether a safety monitor is needed. A safety monitor can be used in conjunction with a fall restraint system. The safety monitor will:
 - i) Be knowledgeable in setting up the fall restraint system.
 - ii) Warn employee when it appears that the employee is unaware of a hazard or acting in an unsafe manner.
 - iii) Be on the same walking/working surface and within visual sighting distance as the monitored employee.
 - iv) Be close enough to orally communicate with the monitored employee.
 - v) Not have other responsibilities which could take their attention from the monitoring function.
- h) Fall protection is required when approaching within 6 feet of a skylight. Fall protection can be provided by one of the following methods: skylight screens, guardrails, covers, or personal fall

protection equipment. Exceptions: the manufacturer or a structural engineer has certified that the skylights will support anticipated loads or when the work is of short duration and limited exposure such as measuring and roof inspection, provided that adequate risk control is recognized and maintained. An employee should not stand on a skylight.

- i) Fall protection is required when working on roof with slope greater than 7:12.

13) Floor and Roof Openings

The following safeguards must be in place whenever possible to avoid situations where personal fall protection equipment is necessary:

- a) Work a minimum of 6 feet from the roof's edge.
- b) Never leave unprotected floor/roof openings unattended.
- c) Cover any floor or roof openings greater than 12 inches in the least horizontal dimension with a protective cover.
 - i) Protective covers will be able to withstand a weight of 400 pounds or twice the potential weight of the employees, equipment, or material imposed upon the cover.
 - ii) Protective covers must not project more than 1 inch above the floor level and all edges are chamfered to an angle with the horizontal of not more than 30 degrees.
 - iii) All hinges, handles, bolts, or other parts are set flush with the floor or covered surface.
 - iv) Protective covers shall be marked in 1 inch letters or larger in height with the following words: "Caution: Floor Opening - Do Not Remove Cover"
- d) Floor and roof openings can alternatively be protected by a standard guardrail system with a toe board.
- e) In absence of a standard guardrail, hatchway cover must be kept closed except when ascending/descending.

14) Contractors

- a) The project manager will ensure the contractors comply with applicable standards and regulations pertaining to fall protection. Contractors failing to adhere to the provisions of Cal OSHA standards will be asked to terminate their work until their work practices are brought into compliance.
- b) Prior to starting on work requiring fall protection, the contractor will submit a copy of their Fall Protection Plan to the project manager. The project manager will review the plan, and consult with EHS if needed, for required provisions.
- c) An effective rescue plan must be developed and implemented specific to the work location and job being performed prior to the start of work. All necessary equipment shall be readily available and in operable conditions should a fall occur.



- d) Where personal fall protection equipment is utilized, another employee should be present at all times to activate the rescue plan or summon for assistance in the event of a fall.
- e) The project manager will assess and inform the contractor of all known hazards relating to the project, including potential fall hazards.
- f) The contractor shall assess hazards and control measures, provide training and equipment for their employees working at height.

Appendix A

Roof Fall Protection Plan

Job Location:			
Describe Job Task:			
1.	Identify all potential fall hazards in the work area:		
	<input type="checkbox"/> Open-sided walking/working surfaces (roofs, open-sided floors)	<input type="checkbox"/> Floor openings	<input type="checkbox"/> Hazardous process equipment
	<input type="checkbox"/> Open-sided ramps and runways	<input type="checkbox"/> Skylights	<input type="checkbox"/> Swing fall
	<input type="checkbox"/> Elevated work platforms	<input type="checkbox"/> Wall openings	<input type="checkbox"/> Fall clearance
	<input type="checkbox"/> Ladders	<input type="checkbox"/> Trenches	<input type="checkbox"/> Other :
	Describe the hazard(s):		
2.	Method of fall protection to be used:		
	<input type="checkbox"/> Fall restraint	<input type="checkbox"/> Guardrails	<input type="checkbox"/> Warning line
			<input type="checkbox"/> Covers (for holes & openings)
	<input type="checkbox"/> Fall arrest	<input type="checkbox"/> Horizontal life lines	<input type="checkbox"/> Safety monitor
			<input type="checkbox"/> Other:
	Describe:		
3.	Describe procedures for assembly, maintenance, inspection, and disassembly of the fall protection system to be used:		
4.	Describe procedures for handling, storage, and securing of tools and materials:		
5.	Describe methods of overhead protection for employees & those who may be in, or pass through, the area below the work site (i.e. barricading, hard hats required, toeboards, warning signs):		
6.	Describe methods for promptly rescuing employees in an event of a fall and removal of injured employees:		

7.	Identify method used to determine the adequacy of attachment/anchorage points:		
	<input type="checkbox"/> Manufacturer's data	<input type="checkbox"/> Good faith assessment	<input type="checkbox"/> Existing engineering/design documents
	<input type="checkbox"/> Evaluation by qualified engineer	<input type="checkbox"/> Other (describe):	
8. List employees who will be performing work under this plan and the date they received fall protection training.			
<u>Name</u>		<u>Training Date</u>	
_____		_____	
_____		_____	
_____		_____	
_____		_____	
Name/title of person provided training:			
9. Identify the safety monitor(s) (if used – or N/A):			
10. Justify selecting controlled access zone and/or safety monitor (if used – or N/A):			
Approvals			
Fall Protection Plan Completed By:			
Approved By:			
Project Manager's Name:	Signature:	Date	

Appendix B

**Personal Fall Arrest Protection Equipment Inspection Criteria
ANSI Z359.1-1992**

- ❑ User must inspect before each use.
- ❑ Competent person (other than the user) must inspect at least semi – annually.
- ❑ Devices with defects, damage, inadequate maintenance shall be removed from service or undergo adequate corrective maintenance.
- ❑ Inspection criteria (manufacturer’s instructions plus):
 - ❑ Absence or illegibility of markings
 - ❑ Absence of any element affecting the equipment form, fit, or function
 - ❑ Alteration, absence of parts, or evidence of defects in, damage to, or improper function of mechanical devices and connectors
 - ❑ Evidence of defects/damage to **Hardware**:
 - Cracks
 - Sharp edges
 - Deformation
 - Corrosion
 - Chemical attack
 - Excessive heating
 - Alteration
 - Excessive wear
 - ❑ Evidence of Defects to **Straps and Ropes**:
 - Fraying
 - Unsplicing
 - Unlaying
 - Kinking
 - Knotting
 - Roping
 - Broken or pulled stitches
 - Excessive elongation
 - Chemical attack
 - Excessive soiling
 - Abrasion
 - Alteration
 - Needed or excessive lubrication
 - Excessive aging
 - Excessive wear

Appendix C

Roof Fall Protection Methods

Select the safest, most practical method of fall protection based on the proposed task and the criteria of use for each method.

- 1) **Warning lines and headers** offer protection only on monolithic roofs with a 4:12 slope or less.

They include ropes or wires with minimum 500 pound tensile strength that are secured to prevent slack uptake between sections. Locate them 6 feet from edge (or 10 ft when walking backward to pull equipment) and flag them visibly every 6 feet. Also, support them to prevent displacement and ensure that they can withstand a vertical or horizontal force of 13 pounds per linear feet.

- 2) **Guard rails** offer protection on monolithic roofs and stairwells. They include 4 inch high toe boards, 2x4 upright posts spaced 8 feet apart or closer, a 2x4 top rail 42 to 45 inches high, and a 1x6 mid-rail. Use select lumber or equivalent material for rails.

All railings, including their connections and anchorage, shall be capable of withstanding without failure, a force of at least 200 pounds applied to the top rail within 2 inches of the top edge, in any outward or downward direction, at any point along the top edge.

- 3) **Parapets** are protective walls along the edge. They offer protection on monolithic roofs with slope greater than 4:12 and multiple unit roofs of any slope.

- 4) **Personal fall arrest systems** with safety lines need approval from a qualified or competent person. They provide protection by arresting the fall. They offer protection on monolithic roofs with slopes greater than 4:12 and multiple unit roofs with slopes greater than 5:12. Anchor them to the roof. Anchors and lifeline shall support a 5,000 pound dead weight.

- 5) **Personal fall restraint systems** with safety lines need approval from a qualified or competent person. They provide protection by limiting the approach distance to the roof's edge. Anchors shall support a 1,000 pound dead weight or 4 times the intended load.

- 6) **Covers for holes** shall withstand a weight of 400 pounds or twice the potential weight of the employees, equipment, or material imposed upon the cover. Include a sign on the cover "Opening – Do Not Remove". Fasten securely.

- 7) **Catch platforms** include guardrails. Locate them just below eaves near the work area. They should extend 2 feet horizontally beyond the eave.

- 8) **Safety nets** need approval before use and should extend 8 feet horizontally and not lower than 10 feet below the working surface. They offer protection when personal fall protection is required but impractical. Determine clearances by performing an impact loading test.

- 9) **Scaffold platforms** offer protection on monolithic roofs or multiple unit roofs with slope of greater than 5:12. Use a fully planked part of a scaffold, locate them near eave level. Do not use nailed bracket, loose tile, loose blocks, stilts, or other unstable materials as platforms or supports.

Appendix D

1) Portable Ladder Safety Guidelines

- a) Storage and Maintenance
 - i) Store wooden ladders in well ventilated areas and away from excessive heat or moisture.
 - ii) When storing ladders horizontally, support ladders to avoid sagging and permanent set.
 - iii) Clean ladders after exposure to greases, oil, or other slippery substances.
 - iv) Do not paint ladders so that it covers cracks or defects.
- b) Inspection
 - i) Inspect ladders before using.
 - ii) Do not use ladders with broken, weak, or missing components.
 - iii) Do not use ladders with corrosion inside of hollow rungs.
 - iv) Do not use ladders with the rungs supported solely with nails or other similar fixing devices.
 - v) When a ladder is broken or has a defect, do not repair it. Discard it or tag/mark it as “Dangerous, Do Not Use”.
- c) Ladder Purchase
 - i) Purchase only ladders that:
 - ii) Are designed, constructed and maintained according to OSHA guidelines and standards.
 - iii) Have rungs strung between two rails rather than across a single rail.
- d) Ladder Placement
 - i) Place each side rail on a level and firm footing.
 - ii) Ensure that the ladder is rigid, stable and secure.
 - iii) Keep area around the top and bottom of ladder clear.
 - iv) Do not support the side rails of the ladder with boxes, loose bricks, or other unstable bases.
 - v) Ensure that door openings near the ladder are fastened open, locked or guarded to prevent the door from opening into the ladder.
- e) Ladder Usage
 - i) Only one person at a time may use or work from a single ladder.
 - ii) Always use both hands and face the ladder when ascending or descending.
 - iii) Use only “trestle ladders” to support planks upon which a person will work.
 - iv) Ensure that hands and shoes are not greasy, muddy or otherwise slippery.

- v) Section off work area when working near passageway or driveway.
- f) *When using a ladder Do Not:*
 - i) Place planks on top of a stepladder.
 - ii) Use metal or wire reinforced ladders near electrical conductors or equipment.
 - iii) Join ladders together to form a longer ladder.
 - iv) Use the ladder as a brace, strut, beam, skid, or any other unintended purposes.
 - v) Stand or work on the top cap or the step below the top cap of a stepladder.
 - vi) Use ladder to gain access to a roof unless the top of the ladder extends at least 3 ft above the point of support.

2) Extension Ladders

- i) *When placing extension ladder:*
 - (1) The horizontal distance from the foot of the ladder to the structure is 1/4 of the ladder's length.
 - (2) The ladder extends 3 feet above the rung on which the person is working.
 - (3) An intermediate landing place is provided for each rise of 20 feet.
 - (4) The ladder rises at least 3 feet above any landing place.
 - (5) The ladder passes through floor openings that are as small as possible.
- ii) *When securing extension ladder:*
 - (1) Fix a board to evenly distribute the load, when resting it against a window frame.
 - (2) Fix them at the top and foot so that they cannot move.
 - (3) When securing a ladder at both the top and bottom is not possible, fix it at the base.
 - (4) If this is not possible, a person should secure it manually against slipping.
- iii) *When using extension ladders Do Not:*
 - (1) Stand or work on the top 3 rungs.
 - (2) Extend it to exceed 44 feet.
 - (3) Use it unless it has a 3 foot overlap with working length of up to 33 feet.
 - (4) Use it unless it has a 4 foot overlap with a working length of 33-44 feet.