

Dickinson

Fall Prevention Plan

April 10, 2018

Table of Contents	
Review/Revision Summary	v
Introduction.....	1
Scope and Application	1
Responsibilities.....	1
Availability	2
Annual Review	2
Fall Prevention	2
Walking & Working Surfaces	3
Floors.....	3
Wall Openings and Holes.....	3
Dangerous Equipment	4
Stairway Railings and Guards	4
Railing, Toe Boards, and Cover Specifications	5
LADDER SAFETY	6
General Rules for All Ladders	6
Step Ladders.....	6
Straight and Extended Ladders	7
Fixed Ladders.....	7
Mobile Ladder Stands and Platforms	8
Fall Protection.....	8
Scaffolding Safety	8
Purpose.....	8
General Requirements	9
Platforms	9
Guardrails.....	10
Erection of Scaffolds.....	10
Stilts.....	12
Falling Object Protection	12
AERIAL PLATFORM SAFETY	13
Purpose.....	13
Procedure.....	14
Maintenance Safety Precautions	15
CONSTRUCTION	19
General	19
Unprotected Sides and Edges.....	19
Leading Edge.....	19
Hoist Areas.....	19
Holes.....	20
Formwork and Reinforcing Steel	20
Ramps, Runways and Other Walkways	20
Excavations	20
Overhand Bricklaying and Related Work	20
Roofing Work on Low-Slope Roofs	20
Steep Roofs	21
Pre-Cast Concrete Erection	21

Residential Construction	21
Wall Openings.....	21
Walking/Working Surfaces Not Otherwise Addressed.....	21
Protection from Falling Objects	21
Fall Protection Systems	22
Guardrail Systems	22
Safety Net Systems.....	23
Personal Fall Arrest Systems.....	24
Warning Line Systems	25
Controlled Access Zones.....	26
Safety Monitoring Systems	27
Covers.....	27
Protection from Falling Objects	28
TRAINING	28
Ladders	29
General	29
Retraining.....	29
Scaffolding.....	29
General	29
Retraining.....	30
Aerial Platforms.....	30
Certificate of Training.....	31
Retraining.....	31
Construction.....	31
General	31
Retraining.....	31
RECORD RETENTION.....	31
Employee Records.....	31
Equipment Records.....	32
Appendix A.....	33

Introduction

Dickinson College realizes our responsibility for the protection of our employees. We hereby institute the enclosed Fall Prevention Program. The Fall Prevention Program in accordance with 29 CFR 1910 Subpart D and I and 29 CFR 1926 Subparts L, M, and X establishes basic safety principles and work practices that are capable of protecting employees who are performing work above 4 feet for General Industry Tasks and 6 feet for Construction Tasks at Dickinson College. This document is intended only to highlight those safety measures most commonly applied for achieving a safe and healthy work environment. Where the scope of hazards is not adequately addressed by this general document, the workplace supervisor must develop specific Standard Operating Procedures.

Scope and Application

All employees of Dickinson College performing work with a fall potential of greater than 4 feet must comply with this document.

The duty to provide fall protection does not extend to:

- Portable ladders.
- When employers are inspecting, investigating, or assessing workplace conditions or work to be performed prior to the start of work or after all work has been completed. This exemption does not apply when fall protection systems or equipment meeting the requirements of §1910.29 have been installed and are available for workers to use for pre-work and post-work inspections, investigations, or assessments.
- To fall hazards presented by the exposed perimeters of entertainment stages.

Responsibilities

The Associate Vice President for Facilities Management or their designate advises on matters of material safety policies and practices and:

- Maintains a resource file of references and publications on safety matters.
- Assists with the investigation of accidents.
- Seeks ways to improve the safety plan.

The Department of Compliance & Enterprise Risk Management

- Works with administrators and other employees to develop and implement the appropriate safety policies and practices, including assisting supervisors in writing standard operating procedures.
- Conducts information and general training sessions.
- Annually reviews the Fall Prevention Program.
- Conducts safety audits.
- Keeps a record of all workers trained for the Fall Prevention Operations and topics that were covered before they work in the area.
- Ensures all equipment is safe, maintained, inspected and used correctly.

- Investigates accidents and makes recommendations to prevent reoccurrence.

The Workplace Supervisor is the administrator or staff member under whose instruction fall prevention is required. The supervisor has a primary responsibility for implementing the Fall Prevention Program in the workplace and:

- Ensures workers know and follow the Fall Prevention Guidelines.
- Ensures that training has been provided.
- Ensure that guardrails are used when practicable.
- Ensures that the required level of personal protective equipment is available, in working order, and that specific training in its use has been provided.
- Investigates accidents and makes recommendations to prevent reoccurrence.
- Actively seeks suggestions for improvement from workers.
- Ensures all workers have access to a copy of the Fall Prevention Safety Guidelines.
- Observes workers, work practices and site operations and makes corrections when necessary.
- Enforces the Program.
- Ensure the Program is prepared for each site.
- Ensure a written worksite specific Fall Prevention Plan is in place when needed.

The Fall Prevention Employee must be alert to and aware of the hazards of working at different heights and:

- Know the Fall Prevention Safety Guidelines.
- Follow the procedures, as trained.
- Inspect equipment before use.
- Maintain equipment.
- Report any anomalies to the supervisors.
- Ensure the equipment is used as the manufacturer recommends.

Availability

The Dickinson College Fall Prevention Program shall be readily available to employees and employee representatives through their supervisor, the Associate Vice President for Facilities Management or their designate, or the Department of Compliance & Enterprise Risk Management.

Annual Review

This Plan will be reviewed annually by the Department of Compliance & Enterprise Risk Management to ensure current standards and practices are being followed and update the policy to meet with new standards and practices.

Fall Prevention

Walking & Working Surfaces

Floors

All passageways, storerooms, service rooms, and walking working surfaces shall be kept in a clean, orderly, and sanitary condition. Floors shall be maintained in a clean and, to the extent feasible, in a dry condition. When wet processes are used, drainage must be maintained, and, to the extent feasible, dry standing places, such as false floors, platforms, and mats must be provided.

Surfaces shall be maintained free of hazards such as sharp or protruding objects, loose boards, corrosion, leaks, spills, snow, and ice.

Every stairway floor opening shall be guarded by a standard railing. The railing shall be provided on all exposed sides (except at entrance to stairway). For infrequently used stairways where traffic across the opening prevents the use of fixed standard railing (as when located in aisle spaces, etc.), the guard shall consist of a hinged floor opening cover of standard strength and construction and removable standard railings on all exposed sides (except at entrance to stairway).

Every ladderway floor opening or platform shall be guarded by a standard railing with standard toeboard on all exposed sides (except at entrance to opening), with the passage through the railing either provided with a swinging gate or so offset that a person cannot walk directly into the opening.

Each employee shall be protected from falling through a hatchway and chute-floor hole by one of the following means:

- A hinged floor-hole cover that meets the criteria in §1910.29 and a fixed guardrail system that leaves only one exposed side. When the hole is not in use, the employer must ensure the cover is closed or a removable guardrail system is provided on the exposed sides.
- A removable guardrail system and toeboards on not more than two sides of the hole and a fixed guardrail system on all other exposed sides. The employer must ensure the removable guardrail system is kept in place when the hole is not in use.
- A guardrail system or a travel restraint system when a work operation necessitates passing material through a hatchway or chute floor hole.

Each employee shall be protected from falling through any hole (including skylights) that is 4 feet or more above a lower level by one or more of the following:

- Covers
- Guardrail systems
- Travel restraint systems
- Personal fall arrest systems

Wall Openings and Holes

The College must ensure that each employee on a walking-working surface near an opening, including one with a chute attached, where the inside bottom edge of the opening is less than 39

inches above that walking-working surface and the outside bottom edge of the opening is 4 feet or more above a lower level is protected from falling by the use of one of the following:

- Guardrail systems
- Safety net systems
- Travel restraint systems
- Personal fall arrest systems

Dangerous Equipment

Each employee less than 4 feet above dangerous equipment shall be protected from falling into or onto the dangerous equipment by a guardrail system or a travel restraint system, unless the equipment is covered or guarded to eliminate the hazard.

Each employee 4 feet or more above dangerous equipment must be protected from falling by one of the following:

- Guardrail systems
- Safety net systems
- Travel restraint systems
- Personal fall arrest systems

Stairway Railings and Guards

Each flight of stairs having at least 3 treads and at least 4 risers shall be equipped with stair rail systems:

- On stairways less than 44 inches wide having both sides enclosed, at least one handrail, preferably on the right side descending.
- On stairways less than 44 inches wide having one side open, at least one stair railing on open side.
- On stairways less than 44 inches wide have both sides open, one stair railing on each side.
- On stairways more than 44 inches wide but less than 88 inches wide, one handrail on each enclosed side and one stair railing on each open side.
- On stairways 88 or more inches wide, one handrail on each enclosed side, one stair railing on each open side, and one intermediate stair railing located approximately midway of the width.

Winding stairs shall be equipped with a handrail offset to prevent walking on all portions of the treads having width less than 6 inches.

Vertical clearance above any stair tread to any overhead obstruction shall be at least 6 feet, 8 inches, as measured from the leading edge of the tread.

Stairs shall have uniform riser heights and tread depths between landings.

Standard stairs, unless installed before January 17, 2017, shall meet the following requirements:

- Angles between 30 to 50 degrees from the horizontal
- Maximum riser height of 9.5 inches
- Minimum tread depth of 9.5 inches
- Minimum width of 22 inches between vertical barriers

Railing, Toe Boards, and Cover Specifications

A standard railing shall consist of top rail, intermediate rail, and posts, and shall have a vertical height of 42 inches nominal from upper surface of top rail to floor, platform, runway, or ramp level. 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.

A stair railing shall be of construction similar to a standard railing, but the vertical height shall be not more than 38 inches or less than 36 inches from upper surface of top rail to surface of tread in line with face of riser at forward edge of tread.

The anchoring of posts and framing of members for railings of all types shall be of such construction that the completed structure shall be capable of withstanding a load of at least 200 pounds applied in any direction at any point on the top rail.

A standard toeboard shall be 3.5 inches nominal in vertical height from its top edge to the level of the floor, platform, runway, or ramp. It shall be securely fastened in place and with not more than 1/4-inch clearance above floor level. It may be made of any substantial material either solid or with openings not over 1 inch in greatest dimension.

Where material is piled to such height that a standard toeboard does not provide protection, paneling from floor to intermediate rail, or to top rail shall be provided.

A handrail shall consist of a lengthwise member mounted directly on a wall or partition by means of brackets attached to the lower side of the handrail so as to offer no obstruction to a smooth surface along the top and both sides of the handrail. The handrail shall be of rounded or other section that will furnish an adequate handhold for anyone grasping it to avoid falling. The ends of the handrail should be turned in to the supporting wall or otherwise arranged so as not to constitute a projection hazard.

The height of handrails shall be not more than 38 inches or less than 30 inches from upper surface of handrail to surface of tread in line with face of riser or to surface of ramp.

Handrails have the shape and dimension necessary so that employees can grasp the handrail firmly.

The mounting of handrails shall be such that the completed structure is capable of withstanding a load of at least 200 pounds applied in any direction at any point on the rail.

All handrails and railings shall be provided with a clearance of not less than 2.25 inches between the handrail or railing and any other object.

Floor opening covers may be of any material that meets the following strength requirements:

- Is capable of supporting without failure, at least twice the maximum intended load that may be imposed on the cover at any one time.
- Is secured to prevent accidental displacement.

LADDER SAFETY

General Rules for All Ladders

Ladder rungs, steps, and cleats shall be parallel, level, and uniformly spaced when the ladder is in position for use.

Wooden ladders shall not be coated with any material that may obscure structural defects.

Any ladder with structural or other defects shall be immediately tagged “Dangerous: Do Not Use” or with similar language and removed from service until repaired or replaced.

Employees shall face the ladder when climbing up or down it, and shall use at least one hand to grasp the ladder when climbing up and down it. Employees shall not carry any object or load that could cause the employee to lose balance and fall while climbing up or down the ladder.

Select the right ladder for the task. The ladder’s type is determined by how much weight it can support. The ladder should be selected to be sufficient for your weight plus the weight of any tools and materials you’re carrying.

- TYPE 1A-Extra-heavy industrial ladder will support 300 lbs.
- TYPE 1-Heavy-duty industrial ladder will support 250 lbs.
- TYPE 2-Medium-duty commercial ladder will support 225 lbs.
- TYPE 3-Light-duty household ladder will support 200 lbs.

In some situations, barricades, cones, or a second person may be required to secure the area or to assist and hold the ladder.

Ladders shall be used only on stable and level surfaces unless they are secured or stabilized to prevent accidental displacement. No ladder shall be moved, shifted, or extended while an employee is on it.

Step Ladders

- Inspect the ladder before using it. Remove defective ladders from service and notify your supervisor.
- Always open and set the ladder level on all four feet on a firm base, lock spreaders in place.
- Never use a stepladder like a straight ladder.
- Never climb higher than the second thread or rung from the top.
- Do not place tools or materials on the steps.
- Do not place a ladder in front of a door that opens toward it unless the door is locked, blocked, or guarded by someone.
- Keep both feet on the ladder. Do not reach out too far or place one foot on some other surface.
- Only one person is to be on a ladder at any time.

- Do not use ladders for skids, braces, workbenches or any other purpose other than climbing.
- Two people may be required when working from a ladder of any height; check with your supervisor before starting the task.

Straight and Extended Ladders

Extension ladders should have proper overlap, depending on their length.

- Three foot overlap for 32-foot ladder
- Four foot overlap for 32- to 36-foot ladder
- Five foot overlap for 36- to 48-foot ladder
- Six foot overlap for 48-foot ladder
- Place the ladder's feet on a substantial and level base, not on movable objects, and the top of the ladder must be adequately tied off at the top to prevent slipping.
- Use the four to one ratio when placing a ladder into service. Place the ladder so that its feet are one foot away from what it leans against for every four feet in height to the point where the top of the ladder rests.
- The top of the ladder must extend at least three feet beyond the supporting object when used as access to an elevated work area such as a roof. This allows ample mounting and dismounting onto the work area.
- The top of the ladder shall be placed so that both side rails are supported, unless the ladder is equipped with a single support attachment.
- Be sure that your shoes are not greasy, muddy, or slippery before climbing. Check the rungs for grease, mud and other debris and remove it before climbing the ladder.
- Do not climb higher than the third rung from the top on a straight or extension ladder.

Fixed Ladders

- When a fixed ladder terminates at a hatch, the hatch cover shall:
 - Open with sufficient clearance to provide easy access to or from the ladder; and
 - Open at least 70 degrees from horizontal if the hatch is counterbalanced
- Fixed ladders having a pitch greater than 90 degrees from the horizontal shall not be used.
- For fixed ladders that extend more than 24 feet above a lower level, the employer must ensure:
 1. Each fixed ladder installed before November 19, 2018 is equipped with a personal fall arrest system, ladder safety system, cage, or well;
 2. Each fixed ladder installed on and after November 19, 2018, is equipped with a personal fall arrest system or a ladder safety system;

3. Replacement. When a fixed ladder, cage, or well, or any portion of a section thereof, is replaced, a personal fall arrest system or ladder safety system is installed in at least that section of the fixed ladder, cage, or well where the replacement is located; and
4. On and after November 18, 2036, all fixed ladders are equipped with a personal fall arrest system or a ladder safety system.

Mobile Ladder Stands and Platforms

- Mobile ladder stands and platforms shall be capable of supporting at least four times their maximum intended load.
- Mobile ladder stands and platforms with a top step height of 4 feet or above shall have handrails with a vertical height of 29.5 to 37 inches, measured from the front edge of a step.
- Mobile ladder stand platforms with a platform height of 4 to 10 feet shall have, in the platform area, handrails with a vertical height of at least 36 inches and midrails.
- Ladder stand platforms with a platform height above 10 feet have guardrails and toeboards on the exposed sides and ends of the platform.
- The maximum work-surface height of mobile ladder stands and platforms shall not exceed four times the shortest base dimension, without additional support. For greater heights, outriggers, counterweights, or comparable means that stabilize the mobile ladder stands and platforms and prevent overturning must be used.
- Mobile ladder stands and platforms that have wheels or casters shall be equipped with a system to impede horizontal movement when an employee is on the stand or platform.
- No mobile ladder stand or platform shall be moved when an employee is on it.

Fall Protection

Scaffolding Safety

Purpose

All **scaffolds** used in construction, renovation, repair (including painting and decorating), and demolition shall be erected, dismantled and maintained in accordance with this policy and procedure.

Competent Persons are responsible for the following:

1. Not to inter mix scaffold components manufactured by different manufacturers unless the components fit together without force and the scaffold's structural integrity is maintained. Scaffold components manufactured by different manufacturers will not be modified in order to inter mix them unless the Competent Person determines the resulting scaffold is structurally sound.
2. Evaluating all direct connections and to confirm, based on that evaluation, that the supporting surfaces are capable of supporting the loads to be imposed before a suspension scaffold may be used.

3. Inspecting all suspension scaffold ropes prior to each work shift and after every occurrence which could affect a rope's integrity. Ropes shall be replaced if any of the conditions outlined in 29 CFR 1926.451(d)(10) exist.
4. Directly supervising the erection, moving, dismantling, or altering of all scaffolds used by department employees.

Qualified Persons - Shall be responsible for the following:

1. The design, construction, and loading of all scaffolds.
2. Ensuring that swaged attachments or spliced eyes on wire suspension scaffolds are not used unless they are made by the wire rope manufacturer.
3. Training each employee who performs work while on a scaffold to recognize the hazards employed with the type of scaffold being used and to understand the procedures to control or to minimize those hazards. This training is to be documented and signed copies to be given to the Department Supervisor.

General Requirements

Capacity/Loads

A qualified person must design all scaffolding in accordance with the Occupational Safety and Health Administration (OSHA) 29 CFR 1926.451 "General Requirements for Scaffolds" and 29 CFR 1926.452 "Additional Requirements Applicable to Specific Types of Scaffolds".

Stationary scaffolds over 125 feet in height and rolling scaffolds over 60 feet in height shall be designed by a **professional engineer**. All equipment shall be inspected to see that it is in good condition and is serviceable. Damaged or deteriorated equipment shall not be used.

All scaffolds and their components must support without failure its own weight and at least four times the maximum intended load applied or transmitted to the scaffold.

Platforms

Platforms shall be constructed as follows:

- Platforms shall be entirely planked and decked with space not more than one inch wide between the platforms and uprights.
- The platform shall not deflect more than 1/60 of the span when loaded.
- All platforms shall be kept clear of debris or other obstructions that may hinder the working clearance on the platform.
- Wood planks shall be inspected to see that there are graded for scaffold use, are sound and in good condition, straight grained, free from saw cuts, splits and holes.
- Platforms and walkways shall be at least 18 inches in width. When the work area is less than 18 inches wide, **guardrails** and/or personal fall arrest systems shall be used.
- Where platforms are overlapped to create a long platform, the overlap shall occur only over supports, and shall not be less than 12 inches unless the platforms are nailed.
- A platform greater than 10 feet in length shall not extend over its support more than 18 inches, unless it is designed and installed so that the cantilevered portion of the platform

is able to support employees without tipping or has guardrails which block employee access to the cantilevered end.

- Wood surface shall not be covered with opaque finishes, other than the edges for making identification.
- Platforms may be coated periodically with wood preservatives, fire-retardant finishes, and slip-resistant finishes; however, the coating shall not obscure the top or bottom wood surfaces.
- Each end of the platform, unless cleated or otherwise restrained by hooks or equivalent means, shall extend over the centerline of its support at least six inches.

Scaffold components manufactured by different manufacturers shall not be intermixed unless the components fit together without force and the scaffold's structural integrity is maintained. Scaffold components made of dissimilar metals shall not be used together unless a competent person has determined that **galvanic action** will not reduce the strength of any component.

Guardrails

All scaffolds more than ten feet above the lower level shall protect employees with guardrails on each open side of the scaffold. Guardrails shall be installed along the open sides and ends before releasing the scaffold for use by the employees, other than erection or dismantling crews.

Guardrails are not required when both of the following are true:

- The front end of all platforms are less than 14 inches from the face of the work.
- When employees are plastering and lathing 18 inches or less from the front edge.

Materials such as steel or plastic banding shall not be used for top rails or mid rails.

Erection of Scaffolds

Prior to Erection – All Scaffold Assemblies

All jobsites and work areas shall be inspected prior to the erection of scaffolds to determine the site's ability to support structure, and for location of electric power lines, overhead obstructions, wind conditions, and the need for overhead protection or weather protection coverings.

Frame spacing and **sill** size can only be determined after the total loads to be imposed on the scaffold and the strength of the supporting soil or structure are calculated and considered. Special consideration is required when scaffolding is to be erected on fill, soft or frozen ground. Sills shall be level and in full contact with the supporting surface. A qualified person must do this analysis. Load carrying information on components is available from the scaffold manufacturer.

Wood planks used for **platforms** on scaffolding shall be specifically graded for scaffold use by an approved grading agency.

Erection of Fixed Scaffold

Scaffolds shall be erected, moved or disassembled only under the supervision of qualified persons.

Base plates or **screw jacks** shall be in firm contact with both the sills and the legs of the scaffolding. Screw jacks with base plates shall be used to compensate for uneven ground. Do not use unstable objects such as loose bricks, blocks of wood or concrete to shore up the uneven surface.

All scaffolding shall be plumb and level. **Tying, guying, or bracing** may be needed to assure a safe and stable scaffold assembly. Do not force members to fit. Be sure scaffolding stays level and plumb as erection progresses. The height of the scaffold in relation to the minimum base width, wind loads, the use of brackets or cantilevered platforms and imposed scaffold load determines the need for stability bracing.

Access Requirements

Access shall be provided when scaffold platforms are more than 24 inches above or below the point of access. Direct access is acceptable when the scaffold is not more than 14 inches horizontally and not more than 24 inches vertically from the other surfaces. Cross braces shall not be used as a means of access.

Type of accesses which are permitted:

- Portable ladders
- Hook-on ladders
- Attachable ladders
- Stairways
- Stair towers
- Ramps and walkways
- Integral prefabricated frames

When erecting or dismantling supported scaffolds, a safe means of access shall be provided when a competent person has determined the feasibility and analyzed the site conditions.

Use Requirements

The use of **shore scaffolds** and **lean-to-scaffolds** is strictly prohibited. All employees are prohibited from working on scaffolds covered with snow, ice or other slippery materials.

Ladders shall not be used on scaffolds to increase the working level height of employees, except on large area scaffolds where employers have satisfied the following criteria:

- When the ladder is placed against a structure which is not a part of the scaffold, the scaffold shall be secured against the sideways thrust exerted by the ladder.
- The platform units shall be secured to the scaffold to prevent their movement.
- The ladder legs shall be on the same platform or other means shall be provided to stabilize the ladder against unequal platform deflection.
- The ladder legs shall be secured to prevent them from slipping or being pushed off the platform.

Clearance Distances Between Scaffolds and Power Lines

The following table provides the clearance distances between scaffolds and power lines, or any other conductive material, while being erected, used, dismantled, altered or moved.

Insulated Lines Voltage	Minimum Distance	Alternatives
Less than 300 volts	3 feet	Two times the length of the line insulator, but never less than 10 feet
300 to 50 kv	10 feet	
More than 50 kv	10 feet plus	
<i>General Rule: 0.4 inches for each 1 kv over 50 kv</i>		
Uninsulated Lines Voltage	Minimum Distance	Alternatives
Less than 50 kv	10 feet	Two times the length of the line insulator, but never less than 10 feet
More than 50 kv	10 feet plus	
<i>General Rule: 0.4 inches for each 1 kv over 50 kv</i>		

EXCEPTION: Scaffolds and materials may be closer to power lines than specified where such clearance is necessary for performance of work and only after the utility company or electrical system operator has de-energized or relocated the lines.

Stilts

All employees using stilts shall:

- An employee may wear stilts on a scaffold only if it is a large area scaffold.
- When an employee is using stilts on a large area scaffold where a guardrail system is used to provide fall protection, the guardrail system shall be increased in height by an amount equal to the height of the stilts being used by the employee.
- Surfaces on which stilts are used shall be flat and free of pits, holes and obstructions, such as debris, as well as other tripping and falling hazards.
- Stilts shall be properly maintained. Any alteration of the original equipment shall be approved by the manufacturer.

Falling Object Protection

All employees shall wear hard-hats when working on, assembling, or dismantling scaffolds. This is our primary protection from falling objects.

Additionally, we shall:

- Install guardrail systems with openings small enough to prevent passage of potential falling objects.
- Prevent tools, materials, or equipment that inadvertently fall from our scaffolds from striking any person(s) by barricading the area below the scaffold.

In addition to wearing hard-hats:

- Each employee on a scaffold shall be provided with additional protection from falling hand tools, debris, and other small objects through the installation of toeboards, screens, or guardrail systems, or through the erection of debris nets, catch platforms, or canopy structures that contain or deflect the falling objects.
- When falling objects are too large, heavy or massive to be contained or deflected by any of the above-listed measures, the employer shall place such potential falling objects away from the edge of the surface from which they could fall and shall secure those materials as necessary to prevent their falling.
- Where there is a danger of tools, materials, or equipment falling from a scaffold and striking employees below, the following provisions apply:
 - The area below the scaffold to which objects can fall shall be barricaded, and employees shall not be permitted to enter the hazard area; or a toeboard shall be erected along the edge of the platforms more than 10 feet above lower levels for a distance sufficient to protect employees below, except on float (ship) scaffolds where an edging of ¾ x 1½ inch wood or equivalent may be used in lieu of toeboards;
 - Where tools, materials, or equipment are piled to a height higher than the top edge of the toeboard, paneling or screening extending from the toeboard or platform to the top of the guardrail shall be erected for a distance sufficient to protect employees below; or a guardrail system shall be installed with openings small enough to prevent passage of potential falling objects; or
 - A canopy structure, debris net, or catch platform strong enough to withstand the impact forces of the potential falling objects shall be erected over the employees below.
 - Canopies, when used for falling object protection, shall comply with the following criteria:
 - Capable of withstanding, without failure, a force of at least 50 pounds applied in any downward or horizontal direction at any point along the toeboard.
 - At least three and one-half inches high from the top edge of the toeboard to the level of the walking/working surface. Toeboards shall be securely fastened in place at the outermost edge of the platform and have not more than ¼ inch clearance above the walking/working surface. Toeboards shall be solid or with openings not over one inch in the greatest dimension.

AERIAL PLATFORM SAFETY

Purpose

To outline the safe operating procedures of aerial platforms, aerial ladders, articulating boom platforms, vertical towers, ladder trucks, or a combination of such devices used to elevate employees to job-sites above ground and to prevent serious accidents from occurring while operating these devices. This procedure applies to the above devices owned by Dickinson College or leased by Dickinson College, which are operated by College employees.

Procedure

- a. Only authorized (those who have been properly trained and certified) employees shall operate an aerial platform/lift, extensible boom platform, aerial ladders, articulating boom platforms, vertical towers, ladder trucks, tower trucks, or any combination of such devices.
- b. An employee who is to serve as an operator or a worker who is to perform work from any aerial lift shall be trained on this procedure and on the operating manual of the specific device which is to be operated or work performed from.
- c. Employees who are scheduled to perform routine maintenance, inspections, or to repair any aerial lift shall have received training on this procedure and on the operating manual of the specific device prior to performing any work on that device.
Note: Operating and maintenance manuals should be obtained from the manufacturer of the aerial platform.
- d. A body harness shall be worn, and a connecting device attached to the boom or basket when working from an aerial lift/platform
- e. The operating manual, maintenance manual, and the log of inspections shall be kept with each aerial platform. These documents are considered an integral part of the aerial platform and are vital to communicate necessary safety information to users and operators.
- f. No aerial platform shall be modified or altered without the modifications or alterations being approved and certified in writing by the manufacture. Records of all approved modifications and alterations, including written authorization from the manufacturer for the modification or alteration, shall be kept with the aerial platform as part of the operating and maintenance manual. The altering or disabling of interlocks or other safety devices is prohibited.
- g. All Manufacturer's Safety Bulletins shall be complied with as received from the manufacturer or dealer and copies of them kept with the aerial platform as part of the operating and maintenance manuals.
- h. Maintenance - A preventive maintenance program shall be established for each aerial platform in use at the College, by the responsible department, in accordance with the manufacturer's recommendations and based on the environment and the severity of use of the aerial platform.
- i. Frequent and annual inspections shall be performed by a trained employee.
 1. Frequent inspections shall be made every three months or 150 hours of operating time on all aerial platforms.
 2. An inspection shall be made prior to use if the aerial platform has been out of service for a period longer than three months.
 3. These frequent inspections shall be made by a person qualified (trained) as a mechanic on the specific make and model of the aerial platform.
 4. The inspection shall include all items specified by the manufacturer for a frequent inspection and shall include, but not be limited to the following:

- All functions and their control for speed(s), smoothness, and limits of motion.
 - Emergency lowering mechanism.
 - All chain and cable mechanisms for adjustment and worn or damaged parts.
 - All emergency and safety devices.
 - Lubrication of all moving parts, inspection of filter element(s), hydraulic oil, engine oil, and coolant, as specified by the manufacturer.
 - Visual inspection of structural components and other critical components, such as fasteners, pins, shafts, and locking devices.
 - Placards, warnings, and control markings.
 - Items specified by the manufacturer.
 - Correction of all malfunctions and problems identified and further inspection, if necessary, shall be performed before the aerial platform is returned to service.
 - Written documentation of all quarterly inspections shall be kept with the aerial platform and a copy kept on file by the department.
5. Annual inspections shall be made by a person qualified as a mechanic on the specific make and model of the aerial platform. The inspection shall include all items specified by the manufacturer for an annual inspection. NOTE: This annual inspection is usually a part of the service contract on the aerial platform and is performed by a manufacturer's representative.
 6. Aerial platforms that are not in proper operating condition shall be removed from service until repaired. The key shall be removed and a warning tag stating "DO NOT USE" shall be attached to the control panel of the aerial platform.
 7. Written records of all inspections shall include the deficiencies found, corrective action taken, the date of the inspection and the date of the corrective action along with the name of the person(s) performing the inspection and the corrective action. Written records shall be kept with the aerial platform as part of the operating and maintenance manual and a copy kept on file by the department.

Maintenance Safety Precautions

Before adjustments and/or repairs are started on an aerial platform, the following precautions shall be taken as applicable:

- The platform shall be lowered to the full down position, if possible, or otherwise secured by blocking and cribbing to prevent dropping.
- All controls shall be in the "off" position and all operating features secured from inadvertent motion by brakes, blocks, or other means.
- The power plant shall be stopped and "Locked Out" to prevent inadvertent starting.

- Hydraulic oil pressure shall be relieved from all hydraulic circuits before loosening or removing hydraulic components.
- Safety props or latches shall be installed where applicable as described by the manufacturer.
- Any additional precautions specified by the manufacturer shall be followed.

Replacement Parts

When parts or components are replaced, they shall be identical or equivalent to the original aerial platform parts or components.

Pre-start Inspection - Before use each day or at the beginning of each shift, the employee shall visually inspect the aerial platform and conduct a functional test (a check list shall be utilized for this purpose) including but not limited to the following:

- Operating and emergency controls.
- Safety devices.
- Personal protective devices including fall protection.
- Air, hydraulic, and fuel system leaks.
- Cables and wiring harness.
- Loose and missing parts.
- Tires and wheels.
- Placards, warnings, and control markings.
- Outriggers, stabilizers, and other structures.
- Guardrail system.
- Items specified by the manufacturer.

Before Operation

Before authorizing an employee to operate an aerial platform the supervisor shall:

- Ensure that employee who will be working on the aerial platform has been properly trained on this procedure, the operating manual of the particular type of aerial platform to be used, and that this training has been properly documented.
- Determine that the purpose for which the aerial platform is to be used is within the scope of the intended applications defined by the manufacturer.
- Provide approved fall prevention devices and other safety gear for all employees who will be working on the platform.
- Check the area in which the aerial platform is to be used for possible hazards such as, but not limited to:
 - Drop-offs or holes.
 - Bumps or floor obstructions.

- Debris.
- Overhead obstructions and high voltage conductors.
- Hazardous locations.
- Inadequate surface and support to withstand all load forces imposed by the aerial platform in all operating configurations.
- Wind and weather conditions.
 - Do not operate the aerial platform when wind conditions exceed 25 mph.
- Other possible unsafe conditions.
- Presence of unauthorized persons.

During Operation

The aerial platform shall be operated in accordance with this procedure. The supervisor as needed shall direct each operator to ensure the following before each elevation of the platform:

- That the aerial platform is operated on a surface within the limits specified by the manufacturer.
- That the outriggers, stabilizers, extendable axles, or other stabilizing methods are used as required by the manufacturer.
- That guard rails are installed and access gates or openings are closed per manufacturer's instructions.
- That the load and its distribution on the platform and any platform extension are in accordance with the manufacturer's rated capacity for that specific configuration.
- That there is adequate clearance from overhead obstructions.
- That the minimum safe approach distances to energized power lines and parts are maintained.
- That all safety precautions defined in this procedure and the Operating and Maintenance Manual for the particular model of aerial platform being used are followed during the operation of the aerial platform.
- That all employees maintain a firm footing, with both feet, on the platform floor while working thereon. The use of planks, ladders, or any other device on the aerial platform for achieving additional height or reach is prohibited.
- Special precautions shall be taken when other moving equipment or vehicles are present to comply with local ordinances or safety standards established for the workplace. Warnings such as but not limited to: flags, roped off areas, flashing lights, and barricades shall be used.

Reporting Problems or Malfunctions

The operator shall immediately report any problems or malfunctions that become evident during operation of the aerial platform to the supervisor. Any problems or malfunctions that affect the

safety or operation of the aerial platform shall be repaired prior to continued use of the aerial platform.

Entanglement

Care shall be taken to prevent rope, electric cords, hoses, etc., from becoming entangled in the aerial platform.

Capacity Limitation

Aerial platform rated capacities shall not be exceeded when loads are transferred to the platform at any height.

Work Area

The operator shall ensure that the area surrounding the aerial platform is clear of personnel and equipment before lowering the platform.

Fueling

The engine shall be shut down while fuel tanks are being filled. Fueling shall be done in a well-ventilated area free of flame, sparks, or other hazards that may cause fire or explosion.

Battery Charging

Batteries shall be charged in a well-ventilated area free of flame, sparks, or other hazards that may cause fire or explosion.

Platform Positioning

The aerial platform shall not be positioned against another object to steady the platform.

Mis-Use as A Crane

The aerial platform shall not be used as a crane.

Operating Area

The aerial platform shall not be operated from a position on trucks, trailers, railway cars, floating vessels, scaffolds, or similar equipment, unless the application is approved in writing by the manufacturer.

Travel Conditions

Under all travel conditions, the operator shall limit travel speed according to conditions of ground surface, congestion, visibility, slope, locations of personnel, and other factors causing hazards of collision or injury to personnel.

Unauthorized Use

Means shall be used to protect against use by unauthorized person(s).

Shutdown of the Aerial Platform

The operator shall cease operation of the aerial platform in case of any suspected malfunctions, any hazard, or potentially unsafe condition that may be encountered. The aerial platform and/or the work area shall then be inspected and any malfunction or problem shall be corrected before further operation of the platform.

CONSTRUCTION

General

In certain applications, College employees will perform job tasks that are considered a construction field job task and must comply with standards set forth in OSHA 1926. This section sets forth requirements for employers to provide fall prevention systems. All fall prevention required by this section shall conform to the criteria set forth in 1926.502.

Unprotected Sides and Edges

Each employee performing construction on a walking/working surface (horizontal and vertical surface) with an unprotected side or edge that is 6 feet or more above a lower level shall be protected from falling by one or more of the following:

- Guardrail systems
- Safety net systems
- Personal fall protection systems, such as personal fall arrest, travel restraint, or positioning systems

Leading Edge

The leading edge means the edge of a floor, roof, or formwork for a floor or other walking/working surface (such as the deck) which changes location as additional floor, roof, decking, or formwork sections are placed, formed, or constructed. A leading edge is considered to be an "unprotected side and edge" during periods when it is not actively and continuously under construction.

Each employee who is constructing a leading edge 6 feet or more above lower levels shall be protected from falling by guardrail systems, safety net systems, or personal fall arrest systems. Exception: When the College can demonstrate that it is infeasible or creates a greater hazard to use these systems, the College shall develop and implement a Fall Protection Plan.

Each employee on a walking/working surface 6 feet or more above a lower level where leading edges are under construction, but who is not engaged in the leading edge work, shall be protected from falling by a guardrail system, safety net system, or personal fall arrest system. If a guardrail system is chosen to provide the fall protection, and a controlled access zone has already been established for leading edge work, the control line may be used in lieu of a guardrail along the edge that parallels the leading edge.

Hoist Areas

Each employee in a hoist area shall be protected from falling 6 feet or more to lower levels by guardrail systems or personal fall arrest systems. If guardrail systems, [or chain, gate, or guardrail] or portions thereof, are removed to facilitate the hoisting operation (e.g., during landing of materials), and an employee must lean through the access opening or out over the edge of the access opening (to receive or guide equipment and materials, for example), that employee shall be protected from fall hazards by a personal fall arrest system.

Holes

Each employee performing construction on walking/working surfaces shall be protected from falling through holes (including skylights) more than 6 feet above lower levels, by personal fall arrest systems, covers, or guardrail systems erected around such holes.

Each employee on a walking/working surface shall be protected from tripping in or stepping into or through holes (including skylights) by covers. Each employee on a walking/working surface shall be protected from objects falling through holes (including skylights) by covers.

Formwork and Reinforcing Steel

Each employee on the face of formwork or reinforcing steel shall be protected from falling 6 feet or more to lower levels by personal fall arrest systems, safety net systems, or positioning device systems.

Ramps, Runways and Other Walkways

Each employee on ramps, runways, and other walkways shall be protected from falling 6 feet or more to lower levels by guardrail systems.

Excavations

Each employee at the edge of an excavation 6 feet or more in depth shall be protected from falling by guardrail systems, fences, or barricades when the excavations are not readily seen because of plant growth or other visual barrier.

Each employee at the edge of a well, pit, shaft, and similar excavation 6 feet or more in depth shall be protected from falling by guardrail systems, fences, barricades, or covers.

Overhand Bricklaying and Related Work

Except as otherwise provided, each employee performing overhand bricklaying and related work 6 feet or more above lower levels, shall be protected from falling by guardrail systems, safety net systems, personal fall arrest systems, or shall work in a controlled access zone.

Each employee reaching more than 10 inches below the level of the walking/working surface on which they are working, shall be protected from falling by a guardrail system, safety net system, or personal fall arrest system.

Roofing Work on Low-Slope Roofs

Employees engaged in roofing activities on low-slope roofs:

- When work is performed less than 6 feet from the roof edge, shall be protected from falling by a guardrail system, safety net system, travel restraint system, or personal fall arrest system.
- When work is performed at least 6 feet but less than 15 feet from the roof edge, shall be protected from falling by using a guardrail system, safety net system, travel restraint system, or personal fall arrest system. The employer may use a designated area when performing work that is both infrequent and temporary.
- When work is performed 15 feet or more from the roof edge, is not required to provide any fall protection, provided the work is both infrequent and temporary; provided the

College implements and enforces a work rule prohibiting employees from going within 15 feet of the roof edge without using fall protection.

Steep Roofs

Each employee on a steep roof with unprotected sides and edges 6 feet or more above lower levels shall be protected from falling by guardrail systems with toeboards, safety net systems, or personal fall arrest systems.

Pre-Cast Concrete Erection

Each employee engaged in the erection of pre-cast concrete members (including, but not limited to the erection of wall panels, columns, beams, and floor and roof "tees") and related operations such as grouting of pre-cast concrete members, who is 6 feet or more above lower levels shall be protected from falling by guardrail systems, safety net systems, or personal fall arrest systems, unless another provision provides for an alternative fall protection measure. Exception: When the College can demonstrate that it is infeasible or creates a greater hazard to use these systems, the College shall develop and implement a Fall Protection Plan.

Residential Construction

Each employee engaged in residential construction activities 6 feet or more above lower levels shall be protected by guardrail systems, safety net system, or personal fall arrest system unless another provision provides for an alternative fall protection measure. Exception: When the College can demonstrate that it is infeasible or creates a greater hazard to use these systems, the College shall develop and implement a Fall Protection Plan.

Wall Openings

Each employee working on, at, above, or near wall openings (including those with chutes attached) where the outside bottom edge of the wall opening is 6 feet or more above lower levels and the inside bottom edge of the wall opening is less than 39 inches above the walking/working surface, shall be protected from falling by the use of a guardrail system, a safety net system, or a personal fall arrest system.

Walking/Working Surfaces Not Otherwise Addressed

Each employee on a walking/working surface 6 feet or more above lower levels shall be protected from falling by a guardrail system, safety net system, or personal fall arrest system.

Protection from Falling Objects

When an employee is exposed to falling objects, the employer shall have each employee wear a hard hat and shall implement one of the following measures:

- Erect toeboards, screens, or guardrail systems to prevent objects from falling from higher levels.
- Erect a canopy structure and keep potential falling objects far enough from the edge of the higher level so that those objects would not go over the edge if they were accidentally displaced.
- Barricade the area to which objects could fall, prohibit employees from entering the barricaded area, and keep objects that may fall far enough away from the edge of a higher level so that those objects would not go over the edge if they were accidentally displaced.

Fall Protection Systems

Dickinson College shall provide and install all fall protection systems required for an employee, and shall comply with all other pertinent requirements before that employee begins the work that necessitates the fall protection.

Guardrail Systems

Top edge height of top rails, or equivalent guardrail system members, shall be 42 inches plus or minus 3 inches above the walking/working level. When conditions warrant, the height of the top edge may exceed the 45-inch height, provided the guardrail system meets all other criteria listed below.

Note: When employees are using stilts, the top edge height of the top rail, or equivalent member, shall be increased an amount equal to the height of the stilts.

Mid-rails, screens, mesh, intermediate vertical members, or equivalent intermediate structural members shall be installed between the top edge of the guardrail system and the walking/working surface when there is no wall or parapet wall at least 21 inches high.

Mid-rails, when used, shall be installed at a height midway between the top edge of the guardrail system and the walking/working level.

Screens and mesh, when used, shall extend from the top rail to the walking/working level and along the entire opening between top rail supports.

Intermediate members (such as balusters), when used between posts, shall be not more than 19 inches apart.

Other structural members (such as additional mid-rails and architectural panels) shall be installed such that there are no openings in the guardrail system that are more than 19 inches wide.

Guardrail systems shall be capable of withstanding, without failure, a force of at least 200 pounds applied within 2 inches of the top edge, in any outward or downward direction, at any point along the top edge.

When the 200 pound test load is applied in a downward direction, the top edge of the guardrail shall not deflect to a height less than 39 inches above the walking/working level.

Mid-rails, screens, mesh, intermediate vertical members, solid panels, and equivalent structural members shall be capable of withstanding, without failure, a force of at least 150 pounds applied in any downward or outward direction at any point along the mid-rail or other member.

Guardrail systems shall be so surfaced as to prevent injury to an employee from punctures or lacerations, and to prevent snagging of clothing. The ends of all top rails and mid-rails shall not overhang the terminal posts, except where such overhang does not constitute a projection hazard. Steel banding and plastic banding shall not be used as top rails or mid-rails.

Top rails and mid-rails shall be at least one-quarter inch nominal diameter or thickness to prevent cuts and lacerations. If wire rope is used for top rails, it shall be flagged at not more than 6-foot intervals with high-visibility material.

When guardrail systems are used at hoisting areas, a chain, gate or removable guardrail section shall be placed across the access opening between guardrail sections when hoisting operations are not taking place.

When guardrail systems are used at holes, they shall be erected on all unprotected sides or edges of the hole.

When guardrail systems are used around holes used for the passage of materials, the hole shall have not more than two sides provided with removable guardrail sections to allow the passage of materials. When the hole is not in use, it shall be closed over with a cover, or a guardrail system shall be provided along all unprotected sides or edges.

When guardrail systems are used around holes which are used as points of access (such as ladder-ways), they shall be provided with a gate, or be so offset that a person cannot walk directly into the hole.

Guardrail systems used on ramps and runways shall be erected along each unprotected side or edge.

Manila, plastic or synthetic rope being used for top rails or mid-rails shall be inspected as frequently as necessary to ensure that it continues to meet the strength requirements.

Safety Net Systems

Safety nets shall be installed as close as practicable under the walking/working surface on which employees are working, but in no case more than 30 feet below such level. When nets are used on bridges, the potential fall area from the walking/working surface to the net shall be unobstructed.

Safety nets shall extend outward from the outermost projection of the work surface as follows:

Vertical distance from working level to horizontal plane of net	Minimum required horizontal distance of outer edge of net from the edge of the working surface
Up to 5 feet	8 feet
More than 5 feet up to 10 feet	10 feet
More than 10 feet	13 feet

Safety nets shall be installed with sufficient clearance under them to prevent contact with the surface or structures below when subjected to an impact force equal to the drop test specified below.

Safety nets and their installations shall be capable of absorbing an impact force equal to that produced by the drop test specified below.

Safety nets and safety net installations shall be drop-tested at the jobsite after initial installation and before being used as a fall protection system, whenever relocated, after major repair, and at 6-month intervals if left in one place. The drop-test shall consist of a 400 pound bag of sand 30 + or - 2 inches in diameter dropped into the net from the highest walking/working surface at which employees are exposed to fall hazards, but not from less than 42 inches above that level.

Defective nets shall not be used. Safety nets shall be inspected at least once a week for wear, damage, and other deterioration. Defective components shall be removed from service. Safety

nets shall also be inspected after any occurrence which could affect the integrity of the safety net system.

Materials, scrap pieces, equipment, and tools which have fallen into the safety net shall be removed as soon as possible from the net and at least before the next work shift.

The maximum size of each safety net mesh opening shall not exceed 36 square inches nor be longer than 6 inches on any side, and the opening, measured center-to-center of mesh ropes or webbing, shall not be longer than 6 inches. All mesh crossings shall be secured to prevent enlargement of the mesh opening.

Each safety net (shall have a border rope for webbing with a minimum breaking strength of 5,000 pounds.

Connections between safety net panels shall be as strong as integral net components and shall be spaced not more than 6 inches apart.

Personal Fall Arrest Systems

Personal fall arrest systems must meet the requirements of 1910.140 which establishes performance, care, and use criteria for all personal fall protection systems, including, but not limited to the following:

- When vertical lifelines are used, each employee must be attached to a separate lifeline
- Lanyards and vertical lifelines must have a minimum breaking strength of 5,000 pounds
- Self-retracting lifelines and lanyards that automatically limit free fall distance to 2 feet or less must have components capable of sustaining a minimum tensile load of 3,000 pounds applied to the device with the lifeline or lanyard in the fully extended position.
- D-rings, snaphooks, and carabiners must be capable of sustaining a minimum tensile load of 5,000 pounds
- Snaphooks and carabiners must be the automatic locking type that require at least two separate, consecutive movements to open
- Anchorages must be capable of supporting at least 5,000 pounds for each employee attached; or designed, installed, and used, under the supervision of qualified person, as part of a complete personal fall protection system that maintains a safety factor of at least two.
- Travel restraint lines must be capable of sustaining a tensile load of at least 5,000 pounds.
- Personal fall protection systems and their components must be used exclusively for employee fall protection and not for any other purpose, such as hoisting equipment or materials.
- A personal fall protection system or its components subjected to impact loading must be removed from service immediately and not used again until a competent person inspects the system or components and determines that it is not damaged and safe for use for employee personal fall protection.

- Personal fall protection systems must be inspected before initial use during each workshift for mildew, wear, damage, and other deterioration, and defective components must be removed from service.
- The employer must provide for prompt rescue of each employee in the event of a fall.
- Personal fall protection systems must be worn with the attachment point of the body harness located in the center of the employee's back near shoulder level. The attachment point may be located in the pre-sternal position if the free fall distance is limited to 2 feet or less.
- Personal fall arrest systems must limit the maximum arresting force on the employee to 1,800 pounds.
- Personal fall arrest systems are rigged in such a manner that the employee cannot free fall more than 6 feet (1.8 m) or contact a lower level.

Warning Line Systems

The warning line shall be erected around all sides of the roof work area. When mechanical equipment is not being used, the warning line shall be erected not less than 6 feet from the roof edge.

When mechanical equipment is being used, the warning line shall be erected not less than 6 feet from the roof edge which is parallel to the direction of mechanical equipment operation, and not less than 10 feet from the roof edge which is perpendicular to the direction of mechanical equipment operation. Points of access, materials handling areas, storage areas, and hoisting areas shall be connected to the work area by an access path formed by two warning lines.

When the path to a point of access is not in use, a rope, wire, chain, or other barricade, equivalent in strength and height to the warning line, shall be placed across the path at the point where the path intersects the warning line erected around the work area, or the path shall be offset such that a person cannot walk directly into the work area.

Warning lines shall consist of ropes, wires, or chains and supporting stanchions erected as follows:

- The rope, wire, or chain shall be flagged at not more than 6-foot intervals with high-visibility material.
- The rope, wire, or chain shall be rigged and supported in such a way that its lowest point (including sag) is no less than 34 inches from the walking/working surface and its highest point is no more than 39 inches from the walking/working surface.
- After being erected, with the rope, wire, or chain attached, stanchions shall be capable of resisting, without tipping over, a force of at least 16 pounds applied horizontally against the stanchion, 30 inches above the walking/working surface, perpendicular to the warning line, and in the direction of the floor, roof, or platform edge.
- The rope, wire, or chain shall have a minimum tensile strength of 500 pounds and after being attached to the stanchions, shall be capable of supporting, without breaking.

- The line shall be attached at each stanchion in such a way that pulling on one section of the line between stanchions will not result in slack being taken up in adjacent sections before the stanchion tips over.

No employee shall be allowed in the area between a roof edge and a warning line unless the employee is performing roofing work in that area.

Mechanical equipment on roofs shall be used or stored only in areas where employees are protected by a warning line system, guardrail system, or personal fall arrest system.

Controlled Access Zones

When used to control access to areas where leading edge and other operations are taking place the controlled access zone shall be defined by a control line or by any other means that restricts access.

When control lines are used, they shall be erected not less than 6 feet nor more than 25 feet from the unprotected or leading edge, except when erecting pre-cast concrete members.

When erecting pre-cast concrete members, the control line shall be erected not less than 6 feet nor more than 60 feet or half the length of the member being erected, whichever is less, from the leading edge.

The control line shall extend along the entire length of the unprotected or leading edge and shall be approximately parallel to the unprotected or leading edge. The control line shall be connected on each side to a guardrail system or wall.

When used to control access to areas where overhand bricklaying and related work are taking place:

- The controlled access zone shall be defined by a control line erected not less than 10 feet nor more than 15 feet from the working edge.
- The control line shall extend for a distance sufficient for the controlled access zone to enclose all employees performing overhand bricklaying and related work at the working edge and shall be approximately parallel to the working edge.
- Additional control lines shall be erected at each end to enclose the controlled access zone.
- Only employees engaged in overhand bricklaying or related work shall be permitted in the controlled access zone.

Control lines shall consist of ropes, wires, tapes, or equivalent materials, and supporting stanchions as follows:

- Each line shall be flagged or otherwise clearly marked at not more than 6-foot intervals with high-visibility material.
- Each line shall be rigged and supported in such a way that its lowest point (including sag) is not less than 39 inches from the walking/working surface and its highest point is not more than 45 inches [50 inches when overhand bricklaying operations are being performed] from the walking/working surface.
- Each line shall have a minimum breaking strength of 200 pounds.

- On floors and roofs where guardrail systems are not in place prior to the beginning of overhand bricklaying operations, controlled access zones shall be enlarged, as necessary, to enclose all points of access, material handling areas, and storage areas.
- On floors and roofs where guardrail systems are in place, but need to be removed to allow overhand bricklaying work or leading edge work to take place, only that portion of the guardrail necessary to accomplish that day's work shall be removed.

Safety Monitoring Systems

The College has designated College administrators and staff supervisors to monitor the safety of other employees and the College shall ensure that the safety monitors complies with the following requirements:

1. The safety monitor shall be competent to recognize fall hazards.
2. The safety monitor shall warn the employee when it appears that the employee is unaware of a fall hazard or is acting in an unsafe manner.
3. The safety monitor shall be on the same walking/working surface and within visual sighting distance of the employee being monitored.
4. The safety monitor shall be close enough to communicate orally with the employee.
5. The safety monitor shall not have other responsibilities which could take the monitor's attention from the monitoring function.
6. Mechanical equipment shall not be used or stored in areas where safety monitoring systems are being used to monitor employees engaged in roofing operations on low-slope roofs.
7. No employee, other than an employee engaged in roofing work [on low-sloped roofs] or an employee covered by a fall protection plan, shall be allowed in an area where an employee is being protected by a safety monitoring system.
8. Each employee working in a controlled access zone shall be directed to comply promptly with fall hazard warnings from safety monitors.

Covers

Covers for holes in floors, roofs, and other walking/working surfaces shall meet the following requirements:

1. Covers located in roadways and vehicular aisles shall be capable of supporting, without failure, at least twice the maximum axle load of the largest vehicle expected to cross over the cover.
2. All other covers shall be capable of supporting, without failure, at least twice the weight of employees, equipment, and materials that may be imposed on the cover at any one time.
3. All covers shall be secured when installed so as to prevent accidental displacement by the wind, equipment, or employees.
4. All covers shall be color coded or they shall be marked with the word "HOLE" or "COVER" to provide warning of the hazard.

Note: This provision does not apply to cast iron manhole covers or steel grates used on streets or roadways.

Protection from Falling Objects

Falling object protection shall comply with the following provisions:

1. Toeboards, when used as falling object protection, shall be erected along the edge of the overhead walking/working surface for a distance sufficient to protect employees below.
2. Toeboards shall be capable of withstanding, without failure, a force of at least 50 pounds applied in any downward or outward direction at any point along the toeboard.
3. Toeboards shall be a minimum of 4 inches in vertical height from their top edge to the level of the walking/working surface. They shall have not more than 1/4 inch clearance above the walking/working surface. They shall be solid or have openings not over 1 inch in greatest dimension.
4. Where tools, equipment, or materials are piled higher than the top edge of a toeboard, paneling or screening shall be erected from the walking/working surface or toeboard to the top of a guardrail system's top rail or mid-rail, for a distance sufficient to protect employees below.
5. Guardrail systems, when used as falling object protection, shall have all openings small enough to prevent passage of potential falling objects.
6. During the performance of overhand bricklaying and related work:
 - No materials or equipment except masonry and mortar shall be stored within 4 feet of the working edge.
 - Excess mortar, broken or scattered masonry units, and all other materials and debris shall be kept clear from the work area by removal at regular intervals.
7. During the performance of roofing work:
 - Materials and equipment shall not be stored within 6 feet of a roof edge unless guardrails are erected at the edge.
 - Materials which are piled, grouped, or stacked near a roof edge shall be stable and self-supporting.
8. Canopies, when used as falling object protection, shall be strong enough to prevent collapse and to prevent penetration by any objects which may fall onto the canopy.

The Fall Protection Plan shall identify each location where conventional fall protection methods cannot be used. These locations shall then be classified as controlled access zones and the employer must comply with the criteria relating to controlled access zones.

In the event an employee falls, or some other related, serious incident occurs, (e.g., a near miss) the employer shall investigate the circumstances of the fall or other incident to determine if the fall protection plan needs to be changed (e.g. new practices, procedures, or training) and shall implement those changes to prevent similar types of falls or incidents.

TRAINING

Ladders

General

The College shall provide a training program for each employee using ladders and stairways, as necessary. The program shall enable each employee to recognize hazards related to ladders and stairways, and shall train each employee in the procedures to be followed to minimize these hazards.

The employer shall ensure that each employee has been trained by a competent person in the following areas, as applicable:

- The nature of fall hazards in the work area.
- The correct procedures for erecting, maintaining, and disassembling the fall protection systems to be used.
- The proper construction, use, placement, and care in handling of all stairways and ladders.
- The maximum intended load-carrying capacities of ladders.
- The standards contained in this subpart.

Retraining

Retraining shall be provided for each employee as necessary so that the employee maintains the understanding and knowledge acquired through compliance with this plan.

Scaffolding

General

All employees who perform work on a scaffold shall be trained to recognize the hazards associated with the type of scaffold being used and the procedures to control or minimize those hazards. Training is provided by each department that requires the use of scaffolding. Employees shall be trained to demonstrate competency in the following areas:

- Nature of electrical, fall hazards and falling object hazards in the work area.
- Proper use of scaffolds.
- Proper handling of materials on scaffolds.
- Proper erecting, maintaining and disassembling of fall protection systems.
- Proper construction, use, placement and care in handling of scaffolds.
- Maximum intended load and load-carrying capacities of scaffolds used.

Competent Person

- Must be knowledgeable about the requirements of the various scaffold standards and have sufficient training or knowledge to identify and sufficient authority to correct hazards encountered in scaffold work.
- Must have specific training in and be knowledgeable regarding the structural integrity of scaffolds and procedures needed to maintain them. For example, a competent person

must be able to evaluate the effects of such potentially damage-causing occurrences as a dropped load or a truck backing into a supporting leg.

Qualified Person(s)

Must have the training necessary to design scaffolds, solve and resolve problems related to the subject matter, the work or the project by virtue of a recognized degree, certificate, or professional standing, or by extensive knowledge, training and experience.

Retraining

When there is reason to believe that one of our employees lacks the skill or understanding needed for safe work involving the erection, use or dismantling of scaffolds, the employee shall be re-trained so that the requisite proficiency is regained. Retraining shall be done in at least the following situations:

- Where changes at the worksite present a hazard about which the employee has not been previously trained.
- Where changes in the types of scaffolds, fall prevention, falling object protection, or other equipment present a hazard about which an employee has not been previously trained.
- Where inadequacies in an affected employee's work involving scaffolds indicate that the employee has not retained the requisite proficiency.

Aerial Platforms

All College employees who are scheduled to perform the functions of operators of aerial platforms or maintenance on aerial platforms shall have been trained on this procedure and either on the same model of aerial platform or one having operating characteristics and controls consistent with the one to be used during actual work site operation. Operator and maintenance training shall include, but not be limited to the following before actually operating the aerial platform or performing maintenance on an aerial platform:

- Know the intended purpose and function of each of the controls.
- Read or been instructed on and understand the manufacturer's operating instructions, maintenance manual and safety rules.
- Read or been instructed on all decals, warnings, and instructions displayed on the aerial platform.
- In addition, maintenance employees shall be instructed in performing frequent (every three months or 150 hours of operation, whichever occurs first) inspections of all aerial platforms maintained by the College.

The operator trainee shall operate the aerial platform in an area free of obstructions under the direction of the qualified person for a time sufficient to determine that the trainee displays proficiency in knowledge and actual operation of the aerial platform. Only properly trained and authorized employees shall be permitted to operate any aerial platform. Only properly trained maintenance employees shall be permitted to perform inspections and required maintenance of aerial platforms.

Certificate of Training

The College shall verify compliance by preparing a written certification record. The written certification record shall contain the name or other identity of the employee trained, the date(s) of the training, and the signature and affiliation of the person who conducted the training, topics covered original written tests and the signature of the employee.

Retraining

Re-training shall take place every three years, whenever a new model aerial platform is acquired or rented by the College, or when an employee demonstrates less than proficiency in the operation or maintenance of aerial platforms.

Construction

General

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

The College shall assure that each employee has been trained, as necessary, by a competent person qualified in the following areas:

- The nature of the fall hazards in the work area and how to recognize them.
- The procedures to be followed to minimize those hazards.
- The correct procedures for installing, inspecting, operating, maintaining, and disassembling the personal fall protection systems that the employee uses.
- The correct use of personal fall protection systems and equipment, including, but not limited to, proper hook-up, anchoring, and tie-off techniques, and methods of equipment inspection and storage, as specified by the manufacturer.
- The proper setup and use of designated areas.

Retraining

When the College has reason to believe that any affected employee who has already been trained does not have the understanding and skill, they shall retrain each such employee. Circumstances where retraining is required include, but are not limited to, situations where:

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

RECORD RETENTION

Employee Records

The following training records shall be maintained by the responsible department.

- Employees trained as operators of each model of aerial platform.

- Employee trained to perform maintenance and inspections on each model of aerial platform.
- Employees trained to be Competent Person for Scaffolding
- Employees trained to be Qualified Persons for Scaffolding
- Employees trained on Fall Prevention and Protection for Construction.

Equipment Records

The following equipment records shall be maintained by the responsible department.

- Complete inventory of portable ladders.
- Conduct a yearly ladder inspection by using the Ladder Inspection Form and maintain a record for each.
- Conduct a yearly scaffolding equipment inspection and maintain a written record.
- Written records of the frequent and annual inspections on each aerial platform owned or rented by the College (if rented for a period of time to require frequent or annual inspection, e.g. 150 hours operation or three months). These records shall include the date of the inspection, model and serial number of the aerial platform, name and affiliation of the person performing the inspection, any deficiencies found, and the corrective action recommended.
- Written records of all repairs accomplished on each aerial platform owned or rented by the College, including the date of the repair, a description of the work accomplished, the work order number, model and serial number of the aerial platform, and the identification of the person(s) performing the work.
- Written records of inspections, repairs, modifications, alterations, and statements of manufacturer's approval for any modifications and alterations shall be maintained after sale or other disposition of the aerial platform.

Appendix A

Ladder Inspection Form

Provided by Werner Co.

Company Name: _____

Please Print

Ladder Reference Number: _____ Dept. _____

Inspector _____ Date: _____



Stepladder

Size _____ ft.

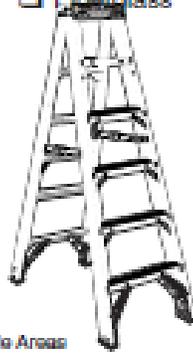
Fiberglass

Aluminum

Wood

Yes

No



Circle Areas of Damage

Steps: Loose, Cracked, Bent or Missing Yes No

Rails: Cracked, Bent, Split or Frayed Rail Shields Yes No

Labels: Missing or Not Readable Yes No

Pail Shelf: Loose, Bent, Missing or Broken Yes No

Top: Cracked, Loose or Missing Yes No

Spreader: Loose, Bent or Broken Yes No

General: Rust, Corrosion or Loose Yes No

Other: Bracing, Shoes, Rivets Yes No

Actions: Ladder tagged as damaged & removed from use
 Ladder is in good condition



Extension Ladder

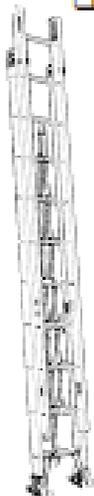
Size _____ ft.

Fiberglass

Aluminum

Yes

No



Circle Areas of Damage

Rungs: Loose, Cracked, Bent or Missing Yes No

Rails: Cracked, Bent, Split or Frayed Yes No

Labels: Missing or Not Readable Yes No

Rung Locks: Loose, Bent, Missing or Broken Yes No

Hardware: Missing, Loose or Broken Yes No

Shoes: Worn, Broken or Missing Yes No

Rope/Pulley: Loose, Bent or Broken Yes No

Other: Bracing Rivets Yes No

General: Rust, Corrosion or Loose Yes No

Actions: Ladder tagged as damaged & removed from use
 Ladder is in good condition

Ladder Inspection Form Provided by Werner Co.

Specialty Ladder

Fiberglass Aluminum Wood

Model Number: _____



Mark all that apply

		Yes	No
Steps/Rungs:	Loose, Cracked Bent or Missing	<input type="checkbox"/>	<input type="checkbox"/>
Rails:	Cracked, Bent, Split or Frayed	<input type="checkbox"/>	<input type="checkbox"/>
Labels:	Missing or Not Readable	<input type="checkbox"/>	<input type="checkbox"/>
Hardware:	Missing, Loose or Broken	<input type="checkbox"/>	<input type="checkbox"/>
Fasteners:	Rust, Corrosion, Loose or Missing	<input type="checkbox"/>	<input type="checkbox"/>
Top:	Cracked, Loose, or Missing	<input type="checkbox"/>	<input type="checkbox"/>
Spreader:	Loose, Bent or Broken	<input type="checkbox"/>	<input type="checkbox"/>
Outriggers:	Missing, Rust, Corrosion or Loose for scaffolding	<input type="checkbox"/>	<input type="checkbox"/>
General:	Rust, Corrosion or Loose	<input type="checkbox"/>	<input type="checkbox"/>
Hinges:	Loose, Bent or Missing	<input type="checkbox"/>	<input type="checkbox"/>
Locks:	Loose, Bent, Broken or Missing	<input type="checkbox"/>	<input type="checkbox"/>
Bracing			
Front,Rear:	Loose, Bent, Broken or Missing	<input type="checkbox"/>	<input type="checkbox"/>
Rivets:	Rust, Corrosion, Loose, Missing	<input type="checkbox"/>	<input type="checkbox"/>
Shoes:	Worn, Broken or Missing	<input type="checkbox"/>	<input type="checkbox"/>
Platform:	Loose, Bent, Broken or Missing	<input type="checkbox"/>	<input type="checkbox"/>
Rail Shield:	Missing or Loose	<input type="checkbox"/>	<input type="checkbox"/>
Shoulder Bolt:	Rust, Corrosion or Loose	<input type="checkbox"/>	<input type="checkbox"/>
Casters:	Rust, Corrosion or Loose for scaffolding	<input type="checkbox"/>	<input type="checkbox"/>

Actions: Ladder tagged as damaged & removed from use
 Ladder is in good condition