Fall Protection Plan
Carnegie Mellon University

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Next review: July, 2015
Current review performed by Jim Gindlesperger, July 9, 2014

PURPOSE

Carnegie Mellon University is dedicated to the protection of its employees from on-the-job injuries. The purpose of this plan is:

   (a) to supplement our standard safety policy by providing safety standards specifically designed to cover fall protection on the job and;
   (b) to ensure that each employee is trained and made aware of the safety provisions which are to be implemented by this plan.

This plan is designed to enable supervisors and employees to recognize the fall hazards and to establish the procedures that are to be followed to prevent falls to lower levels or through holes and openings in walking/working surfaces. Each employee will be trained in these procedures and strictly adhere to them except when doing so would expose the employee to a greater hazard. If, in the employee's opinion, this is the case, the employee is to notify his or her supervisor of the concern and the concern must be addressed before proceeding.

Supplemental, site-specific plans shall be developed as needed and will serve as appendices to this document.

RESPONSIBILITIES

Environmental Health and Safety

   Environmental Health & Safety shall be responsible for providing training for those university employees whose job duties require them to enter onto walking or working surfaces that have an unprotected side or edge that is four feet or more above the next lower level.

   EH&S Shall also be responsible for providing supplemental training on such issues as ladder safety, scaffold safety, aerial lift safety, and other areas in which fall protection is needed.

   EH&S shall regularly inspect areas and jobs where fall protection may be required.

   EH&S shall contact contractors who work on elevated surfaces at Carnegie Mellon University on an annual basis, requiring them to confirm in writing that their employees have been properly trained in fall protection and will follow OSHA fall protection requirements when on CMU property.
EH&S shall be responsible for maintaining this plan.

Supervisors
Supervisors shall be responsible for ensuring that their employees obtain the necessary training on all aspects of fall protection in which they may be engaged, including ladder and scaffold safety, aerial lift safety, and the use of Personal Fall Arrest Systems (PFASs).

Supervisors shall be responsible for performing hazard assessments prior to jobs where fall protection is required. This is necessary to ensure structural integrity, determine necessary personal protective equipment, assess the need for fall protection, and to ascertain the tools and equipment that will be needed to safely perform the job. Where possible, supervisors should eliminate the need for fall protection by revising the task or changing the procedure to perform the task.

Supervisors are responsible for continual observational safety checks of their work operations and for enforcing the safety policy and procedures. The supervisor is also responsible for correcting any unsafe acts or conditions immediately.

Supervisors shall also ensure that the proper personal fall protection equipment, including but not limited to Personal Fall Arrest Systems (PFASs), is provided and maintained.

Employees
It is the responsibility of the employees to understand and adhere to the procedures of this plan and to follow the instructions of the supervisor. It is also the responsibility of the employees to bring to management's attention any unsafe or hazardous conditions or acts that may cause injury to either themselves or any other employees.

Employees shall attend training as directed by their supervisors and shall properly inspect, wear, and maintain all personal protective equipment required for fall protection. Employees shall also be responsible for removing any impediments and for maintaining good housekeeping for the duration of the job, to reduce or eliminate additional hazards associated with trips and/or falls.

PROHIBITED ENTRIES

Entry and/or access to elevated walking and working surfaces that are not protected by a standard guardrail system or other recognized passive fall protection system shall be prohibited when adverse weather conditions exist that may present a fall hazard. Such adverse weather conditions include, but are not limited to:
1. Thunderstorms
2. Wind that is strong enough to make it difficult to maintain footing or balance
3. Snow or ice accumulations on the walking or working surface
4. Wet conditions that have the potential to create unstable footing
5. Any other condition that has the potential to compromise the safety of the employees who will be working on the surface in question

**HOLES AND OPENINGS**

Holes greater than 12” x 12” in any walking or working surface shall be protected with perimeter guarding or covering, with all covers marked “HOLE” or “COVER”. All covers must be anchored so that they will not be displaced by personnel walking over them, vehicles driving across them, or by weather conditions. Skylights, hatches, shafts, riser penetrations, and similar holes shall be guarded in such a way that personnel cannot fall into or through them, and so that materials cannot fall through the hole onto personnel below.

Any covers used in roadways or other areas where vehicles may travel must be capable of supporting at least two times the maximum axle load of the largest vehicle expected to travel across the cover. Other covers must be capable of supporting at least two times the weight of personnel, equipment, and materials that may be imposed on the cover together, at any given time.

Roof hatch doors shall be barricaded or kept closed when not in use, to prevent personnel from falling through the opening.

**FALL PROTECTION METHODS**

When work is performed on an elevated surface, at least two employees shall be used. This will allow one employee to assist in a rescue or to summon assistance in the event of a fall. The area where work will be performed shall be inspected for hazards prior to the beginning of work, to minimize the potential for falls.

Where practical, a guardrail system that protects personnel from falling to a lower level shall be the preferred means of fall protection. Such a passive system does not require personnel to do anything additional to protect themselves, and all such systems shall be installed in accordance with the criteria specified in 29 CFR 1926.502(b).

Where guardrails are not present, personal fall arrest systems, typically consisting of an anchorage, connector, and body harness, shall be used. In addition, the personal fall arrest system may include a lanyard, decelerating device, lifeline or a suitable combination of these. The use of body belts shall not be permitted as a means of fall protection.

Where personal fall arrest systems (PFASs) are used, those systems shall comply with 29 CFR 1926.502(d).

While it is unlikely to prove practical at Carnegie Mellon, a third form of fall protection may be used: a safety net system. All safety net systems shall be installed and used in compliance with the conditions set forth in 29 CFR 1926.502(c).
RESCUE PLAN

Rescue of personnel who have fallen from an elevated surface shall begin immediately, whether that person is suspended by a PFAS or has fallen into a safety net.

For those who are suspended by a PFAS, the suspended person should initiate self-rescue immediately if possible. To facilitate self-rescue, controlled descent devices shall be used where practical.

Failing that, help should be summoned and the suspended person shall be instructed to pull on the lanyard to relieve pressure on the legs, take deep breaths, and maintain movement in his limbs. The University Police (412-268-2323) shall be summoned in all cases in which an employee has fallen into a suspended position. University Police, in turn, shall summon the City Rescue Team (412-622-6940) and escort them to the incident site.

Until the City Rescue Team arrives, rescue efforts shall be employed by other personnel on the scene. Those rescue efforts may include, but not be limited to, lowering the suspended person to ground level or to a point where he may be brought inside through a window, lifting the suspended person to a stable surface, lowering the suspended person with an aerial lift, or utilizing a ladder or scaffold to effect rescue.

An AED shall immediately be brought to the scene as precaution against conditions resulting from orthostatic intolerance.

For anyone who has fallen into a safety net, all work above the net shall be halted immediately and may not resume until the rescue has been completed. The University Police (412-268-2323) shall be summoned in all cases in which an employee has fallen into a safety net. University Police, in turn, shall summon the City Rescue Team (412-622-6940) and escort them to the incident site.

Rescue of fall victims shall be included in fall protection training, and every fall shall be considered a medical emergency.

Fall arrest equipment receiving an impact or shock load from a fall shall immediately be removed from service and tagged “Do Not Use.” The equipment shall not be used again until it has been inspected, repaired, and approved for use by the manufacturer. Equipment that has not been approved by a qualified person at an authorized facility shall be destroyed.

LADDER SAFETY

All ladders shall be inspected prior to each use, with damaged or broken ladders removed from service. No wooden ladders shall be used, and only ladders rated I, IA, or IAA shall be permitted at Carnegie Mellon.
Ladders shall be set up so that the horizontal distance from the foot of the ladder to the support structure is \( \frac{1}{4} \) the working length of the ladder, and shall be tied off or otherwise anchored to prevent accidental movement. Where personnel must leave a ladder to go onto an elevated surface, such as a roof or mezzanine, the ladder must extend at least three feet above the elevated surface. Permanent ladders shall have grab rails extending the same distance.

Where it is necessary to place a ladder in front of a door, that door shall be blocked open, locked, or guarded to prevent the door from striking the ladder if the door is inadvertently opened.

Tools shall not be carried up a ladder. Instead, a tool pouch must be used, or the tools shall be raised by rope.

Personnel shall not be permitted on the top two rungs of a step ladder or the top three rungs of a straight ladder. Only one person shall be permitted on a ladder at any given time. When ascending or descending a ladder, the user shall face the ladder and follow the three-point contact rule.

**SCAFFOLD SAFETY**

Scaffolding shall not be used outdoors during periods of high winds or otherwise inclement weather. Handrails must be kept in place and brakes must be set, where present.

Tools, equipment, and supplies shall be hoisted up rather than carried by hand, or handed to the person on the scaffold by someone on the ground. Carrying materials or tools while climbing is prohibited.

Scaffolding shall only be erected by qualified personnel, and manufacturer’s instructions shall be followed. All components shall be installed, with none omitted, and all components shall be from the same manufacturer. No scaffold may be erected higher than four times the minimum base dimension unless guys, ties, or braces are used. Outriggers shall be used where permitted by the manufacturer.

Cross braces shall not be used to gain access to the scaffold, and scaffolds shall not be moved until all personnel are off the scaffold. Barricades shall be erected to protect persons below and direct them away from the immediate scaffold area.

Dismantling shall be performed from the top downward.

**FALLING MATERIALS (INCLUDING ICE)**

To minimize the potential for materials falling to lower elevations, all material required to complete a job shall be stored no closer than six feet from the edge of the elevated surface, where practical, unless that edge is protected by a parapet. Stored material shall be anchored or
stabilized to prevent it from falling from the roof, including prevention against wind, vibration, or other outside forces. Good housekeeping shall be maintained at all times.

All materials shall be raised or lowered by conventionally accepted practices, such as mechanical hoists, cranes, chutes, or conveyors. Material shall not be dropped or thrown from an elevated surface.

During winter weather roofs, bridges, and other elevated surfaces will be examined for the presence of ice that may fall on persons below. Where it can safety be done, ice will be removed. When removal is not feasible, the area below the ice shall be barricaded to prevent passage until such time as the danger has been mitigated.

**EXCAVATIONS AND TRENCHES**

Excavations and trenches shall be protected by barricades or a berm of at least three feet. Where walkways are provided to allow passage across the trench, those walkways shall be provided with standard guardrail systems.

Excavations and trenches that must remain open at night shall be covered and equipped with barricades and warning lights to prevent persons from falling in.

**CONTRACTORS**

Contractors working on Carnegie Mellon property or on projects on behalf of the university shall be required to comply with all aspects of OSHA’s fall protection program as outlined in 29 CFR 1926, Subpart M. Annual surveys shall be conducted by EH&S to ensure that contractors are aware of and compliant with OSHA fall protection requirements.