DEPAUL UNIVERSITY

Walking/Working Surfaces Manual

Environmental Health & Safety

May 2016

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1.0 PURPOSE

This program provides safety precautions to reduce slips and trips, as well as protection systems to reduce fall hazards. The use of this program will minimize the potential for employee injury by ensuring that DePaul campuses remain free of slip and trip hazards and that falls from walking and working surfaces are prevented.

The program begins with general guidelines for students and employees regarding slips, trips and falls then continues onto higher risk/responsibility groups which are designed to protect all employees and contractors engaged in work activities. It will establish the minimum requirements and responsibilities for employees as prescribed in the Occupational Safety and Health Administration's (OSHA's) Walking-Working Surfaces Standard – 29 CFR 1910 Subpart D and provide an outline for best practices.

2.0 RESPONSIBILITIES

2.1 Facility Operations

Facility Operations is responsible for ensuring that Walking/Working Surfaces training is provided annually for all its eligible employees and that those employees are able to recognize hazards and conduct work in a safe manner based on their training. Training shall be given upon initial assignment, upon new employee hire and whenever a supervisor has reason to believe significant changes in machinery, equipment or work conditions requires re-training. EHS shall retain training records for the entire length of eligible employees' time at the university.

2.2 Environmental Health & Safety (EHS)

EHS is responsible for reviewing, updating and evaluating the Walking/Working Surfaces program on an annual basis. EHS will work with Facility Operations when questions arise regarding compliance and implementation.

3.0 BASICS FOR FACULTY, STAFF AND STUDENT EMPLOYEES

3.1 General Slip, Trip and Fall Precautions

All employees are responsible for maintaining their immediate work areas in a clean and orderly manner and for notifying management of conditions beyond their control. Listed below are some of the most common hazards that occur in work settings and some of the ways to prevent them from leading to injury. These are considered best practices for all DePaul employees.

- *Electrical cords* – Permanent electrical cords must be managed to prevent them from crossing walkways and footpaths. Temporary cords for equipment that must run across footpaths shall be secured flat against the ground with gaffers tape when possible or covered using cable protectors, mats or cable ramps when taping is not practical, such as when temporary cables must cross sidewalks or outdoor walkways or in the case of large diameter cables. In all cases, temporary cables must be removed from walkways and footpaths as soon as possible upon completion of the project or event that prompted their use.
- *Entryways* – Use recessed absorbent 'walk-off' matting to control migration of soil and liquids at all interior doorways that lead to the outside. This is especially important for areas of high student and employee traffic.

- *Footwear* – When working in slippery areas, or with slippery substances, employees are encouraged to wear slip-resistant footwear or protective overshoes. All footwear must be well maintained and in good condition.
- *Hazard reporting* – All employees should report unsafe work conditions to Facility Operations, EHS or Public Safety. Common unsafe conditions may include: Slippery entryways, walkways or stairways, walking surfaces containing holes, chips, cracks, elevations or slippery areas, carpeting with fraying edges, rips and tears, and mats with buckling or curling edges.
- *Lighting* – Illumination shall be sufficient to perform work tasks safely and to travel freely around campus both inside and outside of buildings. Employees who discover lighting deficiencies shall report them to their supervisor.
- *Spills* – Spills of non-hazardous materials will be cleaned up immediately by the employee responsible or reported immediately to housekeeping. If the spill cannot be removed immediately, a warning sign or barricade sufficient to warn others will be put in place.
  Walking surfaces – The floor of every work area and workshop shall be maintained in a clean and, so far as possible, dry condition. Where wet processes are used, drainage shall be maintained and false floors, platforms or mats will be provided where practicable. Floors, walkways and passageways shall be kept free of protruding nails, splinters, holes and loose boards or tiles.

4.0 FACILITY OPERATIONS PERSONNEL

4.1 General Requirements

According to OSHA, slips, trips and falls constitute the majority of general industry accidents and cause 15% of all accidental deaths. Common hazards that can cause unsafe conditions for Facility Operations personnel include ice, wet spots, grease, polished floors, loose flooring or carpeting, uneven walking surfaces, clutter, electrical cords, open desk drawers and filing cabinets and damaged ladder steps. Employees need to be aware of these hazards and utilize preventative practices such as keeping work areas, walkways and stairs clear of scrap and debris, coiling up extension cords, lines and hoses when not in use, keeping wires out of the way, wearing appropriate footwear and proper ladder use techniques.

4.2 Fall Prevention and Protection Systems

Elevated work sites will occasionally have unprotected sides and edges, wall openings or floor holes. If these sides and openings are not protected, injuries from falls or falling objects may result, ranging from sprains and concussions to death.

Floor holes and openings shall be covered or guarded as soon as they are created or discovered. Floor opening covers shall be constructed to effectively support two times the weight of employees, equipment and materials that may be imposed on the cover at any one time. When the distance to the floor below is 48 inches or more, standard railings should be erected along exposed edges of a floor opening, wall opening, ramp, platform or runway to prevent people from falling. When persons can pass below or there is moving machinery or equipment that can be damaged from falling objects, toeboards should be erected along exposed edges of a floor opening, wall opening, platform, runway or ramp to prevent falls of material. Areas below the work area should be marked off to prevent persons or moving machinery or equipment from passing below the overhead work.

In general, it is better to use fall prevention systems (e.g., railings) rather than fall protection systems (.e.g., safety nets, fall arrest devices). Industrial ladders should be installed to access places of work where operations necessitate regular travel between levels.

Where workers are exposed to vertical drops of 6 feet or more, fall protection must be provided before work begins. The nature and location of the work will oftentimes dictate the form that fall protection takes, whether it is placing guardrails around the area, providing personal fall arrest systems for each employee or an alternative solution.

4.3 Guardrail Systems

Guardrail systems shall be erected at unprotected edges, ramps, runways or holes. When a guardrail system is used, it must comply with the following provisions:

- Top edge height of top rails, or equivalent guardrail system members, must be 42 inches plus or minus 3 inches above the walking/working level, except when conditions warrant otherwise and all other criteria are met (e.g., when employees are using stilts, the top edge height of the top rail must be increased by an amount equal the height of the stilts).
- Mid-rails or intermediate structures must be installed between the top edge and the walking/working surface when there is no wall or other structure at least 21 inches high.
- Guardrail systems must be capable of withstanding at least 200 pounds of force applied within 2 inches of the top edge, in any direction and at any point along the edge and without causing the top edge of the guardrail to deflect downward to a height less than 39 inches above the walking/working level.
- Mid-rails, screens, mesh and solid panels shall be erected in accordance with the OSHA Fall Protection Standard and must be capable of withstanding at least 150 pounds of force applied in any direction at any point along the mid-rail.
- Guardrail systems must not have rough or jagged surfaces that can cause punctures, lacerations or snagged clothing.
- Gates or removable guardrail sections shall be placed across openings of hoisting areas or holes when they are not in use to prevent access.

4.4 Personal Fall Arrest Systems

Please see the Fall Protection manual.

4.5 Ladders

All ladders pose a fall hazard if proper precautions are not taken. Falls from ladders can cause injuries ranging from sprains to death. Only ladders that comply with OSHA design standards [29 CFR 1926.1053(a) (1)] should be used. Substituting other items for ladders to gain elevation, such as stacked bricks, overturned buckets, chairs or tables can be especially hazardous and is forbidden. Due to the potential for very long falls, all fixed ladders over 24 feet in length must have a cage or well.

Please refer to the Stairways and Ladders manual for more detailed information regarding the use of ladders at DePaul University.

4.6 Aerial Lifts

Only authorized persons shall operate an aerial lift. Personnel working from or riding in any aerial lift device shall wear a fall restraint system with the lanyard attached to the boom or basket. Belting off to an adjacent pole, structure or equipment is not permitted. An aerial lift truck shall not be moved when the boom is elevated in a working position with personnel in the basket, except for equipment which is specifically designed for this type of operation.

Authorized persons must be trained by a qualified person on:

- How to operate the lift correctly, including maximum intended load and load capacity. The user must demonstrate how to properly use the lift.
- Manufacturer's requirements.
- Pertinent hazards including electrical, fall and falling object hazards.

Aerial lift controls shall be tested prior to use by a competent and trained employee to determine that controls are in safe working condition. Site preparation shall be considered prior to use including, but not limited to the following:

- Surface conditions including drop-offs, holes or other unstable surfaces like loose dirt, sand and mud.
- Observe the presence of overhead electrical lines, communications cables and other overhead obstructions. Request that the power utility de-energize lines if work must be conducted in the area. Even when de-energized, treat all overhead electrical lines as live lines and stay at least 10 feet away from them at all times. Do not set up work between lines. Note that weather conditions such as wind can change clearance distances.
- If aerial lifts are used in an interior setting, ensure that ceiling height is adequate for safe use and the floor is free of obstructions.
- Weather conditions in exterior locations (e.g., high wind, ice).
- Pedestrian and/or vehicle traffic in work area.

After the work site has been assessed and determined to be safe, the lift must be stabilized. Set outriggers on pad or solid, level surfaces. Set brakes and chock wheels as appropriate. Depending on the location, secure the work area with cones to warn others of overhead work. Chains or doors on the lift platform shall always be closed when in use. Staff shall stand firmly within the floor of the lift and will secure themselves using a body harness to the boom or bucket prior to ascent. Staff shall also take care to note the load-capacity limits and adhere to them. The worker, tools, and materials all need to be accounted for when determining the load. Any materials transported in the lift must not be larger than the platform. Workers must also be aware of vertical and horizontal reach limits and these limits must not be exceeded.

Aerial lifts shall be secured in the lower traveling position by the locking device on top of the truck cab and by the manually operated device at the base of the lift before the truck is moved.

5.0 CONTRACTORS

5.1 General Requirements

Contractors working on DePaul campuses are required to comply with 29 CFR 1910 Subpart D and all other applicable OSHA workplace safety regulations. Contractor safety programs shall be available for review upon request by representatives of Facility Operations or EHS. Additionally, Facility Operations will make available to the contractor all pertinent information regarding the work site and potential hazards.

APPENDICES

APPENDIX A: DEFINITIONS

Aerial Lift – Vehicle mounted aerial devices used to elevate personnel to job sites above ground, including (1) Extendable boom platforms; (2) aerial ladders; (3) articulating boom platforms; (4) vertical towers; (5) scissor lifts; (6) a combination of any of the above. These devices are powered or manually operated.

Barricade – An obstruction to deter the passage of persons or vehicles. Acceptable barricading materials can include:

- High visibility tape, colored plastic chain or yellow rope 0.5 inch diameter or larger,
- Rubber plastic traffic cones,
- Sawhorses (with flashing lights at nighttime)
- Metal or wood guard rails.

Fall Arrest System – A system consisting of lifelines, lanyards and deceleration devices attached to an anchorage and connected to a body belt or body harness, which is intended to prevent falling to ground from an elevated walking or working surface.

Fixed Industrial Ladder – Ladders used for routine access between levels. Such ladders must be designed to carry five times the normal anticipated load, be a minimum of 22 inches wide, be installed at 30 to 50 degree angles and shall have a minimum of 7 feet overhead clearance.

Floor Hole – An opening in the floor, platform, grating or pavement that measures less than 12 inches, but more than 1 inch; and through which materials, but not people, may fall.

Floor Opening – An opening in the floor, platform or pavement that measures 12 inches or more, and through which persons may fall.

Guardrail A fixed railing consisting of a top rail, intermediate rail, and posts, sufficiently tall and strong enough to prevent falling from an elevated walking or working surface.

Ladder – A structure typically of wood, metal, or fiberglass, commonly consisting of two side rails between which a series of bars or rungs are set at suitable distances, forming a means of climbing up or down. Ladders can be either fixed, meaning permanently attached to a structure, building, or equipment, or portable, meaning it can readily be moved or carried. Portable ladders can be either of the self-supporting (or foldout) or non-self-supporting (leaning) types.

Platform – Platforms are any elevated surface designed or used primarily as a walking or working surface, and any other elevated surfaces upon which employees are required or allowed to walk or work while performing assigned tasks on a predictable and regular basis. A predictable and regular basis is at least once every 2 weeks or for a total of 4 man-hours or more during any 4 week period.

Standard Railing – Consists of a top rail, midrail and posts. The height from the upper surface of the top rail to the floor level is 42 inches. Midrail height is one half as high as the top rail (21 inches).

Standard Toeboard – Blocks an opening along the base/floor of stairs or other walking or working surface where materials or body parts might otherwise inadvertently fall through. It should be 4 inches high, with not more than 0.25 inch clearance above the floor.

Wall Opening – An opening in a wall or partition that is at least 30 inches high and 18 inches wide, and through which persons may fall.

APPENDIX B: PROGRAM HISTORY

Date	Revision Number	Brief Description of Changes	Review Completed by
5/4/2016	1	Re-worded	J. Graham

ACKNOWLEDGEMENTS

This program was developed using best practice examples from OSHA resources and The University of Texas at Austin.

EHS will review and evaluate this standard practice instruction on an annual basis, or when changes occur to 29 CFR 1910 Subpart D that prompt revision of this document, or when facility operational changes occur that require a revision of this document. Effective implementation of this program requires support from all levels of management at DePaul. This written program will be communicated to all personnel that are affected by it and will encompass the total workplace, regardless of the number of workers employed or the number of work shifts.