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I. Program Goals and Objectives
This program establishes a process to protect employees from the hazards associated with falls to lower levels on Northwestern property. This program will provide guidance for the assessment, determination, and selection of fall protection equipment to perform tasks safely.

II. Scope and Application
This program applies to employees exposed to unprotected edges or surfaces on existing buildings that present a fall hazard of 4 feet or more to a lower level. This program does not apply to work being performed on new construction projects.

The fall protection requirements of this program are exempt during 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 acceptable/certified fall protection systems or equipment are installed and available for workers to use for pre-work and post work inspections, investigations, or assessments.

III. Responsibilities

   A. Risk Management
      i. Maintain and update the fall protection program as needed
      ii. Conduct fall hazard assessments with assistance from departments
      iii. Provide technical support and consultation for departments in selection of appropriate fall protection equipment
      iv. Identify training needs and coordinate or provide fall protection training

   B. Northwestern Departments and Units
      i. Responsible for implementing the fall protection program
      ii. Consult with Risk Management Services for fall hazard assessments, fall protection guidance, and technical support when necessary
      iii. Ensure employees are trained in the use and care of fall protection equipment, as authorized persons
      iv. Provide and maintain fall protection equipment and replace when necessary
      v. Adhere to maintenance and inspection schedules, recommendations, and procedures provided by the manufacturer or certifying engineer for all fall protection equipment and systems
      vi. Monitor and ensure contractor compliance with this program
      vii. Must have a competent person who can identify hazards and who has the authority to take prompt, corrective measures

   C. Authorized Persons
      An authorized person is someone assigned by the employer to perform duties at a location where he/she may be exposed to a fall hazard. Some examples include rooftops, elevated work surfaces, etc.
      i. Responsible for attending all required training
      ii. Responsible for properly using, storing, inspecting, and maintaining fall protection equipment
      iii. Responsible for following the work rules and guidelines set forth by the competent person, and consulting with the competent person when in doubt
D. Competent Persons
A competent person is designated by the employer to be responsible for supervising work being performed at heights and taking action to resolve fall protection hazards through implementing fall protection solutions.

i. Responsible for attending all required training
ii. Responsible for supervising authorized persons performing work involving fall hazards and providing guidance and support when needed
iii. Responsible for taking prompt, corrective measures to eliminate hazards
iv. Responsible for developing correct procedures for erecting, maintaining, disassembling, and inspecting fall protection systems, which includes the roles of employees in fall protection plans
v. All FM supervisors are required to be trained as competent persons

E. Contractors

i. Where fall hazards exist on existing buildings and renovation projects, Contractors must:
   a. Conduct fall hazard assessments
   b. Develop and implement a site-specific fall protection program to protect contract employees from fall hazards
   c. Be responsible for supplying and maintaining fall protection equipment as required

ii. Must be able to provide the fall protection program for inspection upon request
iii. Contractors performing work on buildings with fall protection systems must be fully trained prior to conducting any work
iv. Must have a competent person who meets the requirements in the section above on all job sites involving fall hazards

IV. Fall Hazard Requirements
A fall hazard assessment is required in Appendix 1 (Fall Hazard Assessment Form) for any new, altered, or unfamiliar environments that expose employees to fall hazards greater than 4 feet. A Risk Management representative will conduct an on-site assessment with a representative from the requesting department. Risk Management will provide recommendations, and once the recommendations are accepted and installed, Risk Management will grant final approval for work to commence.

There are many fall hazards at Northwestern that require fall protection and have specific requirements, such as, but not limited to:

A. Loading Docks
Fall protection systems, such as guardrails, gates, nets, or chains, are required. If the use of a fall protection system is not feasible on the working side of a loading dock, work may be done without a fall protection system provided:

i. The work is in process
ii. Access to the edge is limited to authorized employees only who are properly trained to recognize and avoid the hazards associated with work on loading docks

B. Dock boards
Fall protection systems, such as a guardrail system or handrails, are required. Fall protection are not required when:
i. When dock boards are used solely for material-handling operations with motorized equipment
ii. Employees are not exposed to fall hazards greater than 10 feet
iii. Employees have been trained to recognize and avoid the hazards associated with work on dock boards

C. Floor Openings / Holes / Wall Openings
   i. Protect employees from tripping or stepping into or through any hole or opening with covers, guardrails, or any other effective means
   ii. Where covers are used as fall protection measures, they shall remain in place when not in use, be capable of supporting at least twice the maximum intended load, and be secured to prevent accidental displacement

D. Dangerous Equipment
   Regardless of fall distance, protect employees from falling into or onto dangerous equipment by a guardrail system or travel restraint system, unless it is covered or guarded to eliminate the hazard

E. Stairways
   Each flight of stairs having at least 3 treads and at least 4 risers must be equipped with stair rail systems and handrails

F. Repair Pits and Service Pits
   Fall protection systems, such as guardrail system, are required. The use of fall protection is not required for a pit less than 10 feet deep provided:
   i. Access is limited within 6 feet of the edge of the pit to authorized employees who have been trained to recognize and avoid fall hazards
   ii. Contrasting color floor markings are present at least 6 feet from the edge of the pit
   iii. Signs stating “Caution – Open Pit” are posted and visible

G. Building rooftops
   Contact Risk Management prior to commencement of any work on rooftops that do not have a fall hazard assessment or have any changes that would require a new hazard assessment. Fall protection systems, such as guardrails, lifelines, travel restraint systems, or fall arrest systems are required. Refer to Section V for specific rooftop work requirements.

H. Fixed Ladders
   i. If over 24 feet, must be equipped with a personal fall arrest system, ladder safety system, cage, or well
   ii. New or replacement fixed ladders over 24 feet, installed after November 19, 2018, must be equipped with a personal fall arrest system or a ladder safety system

I. Scaffolds
   i. Protect employees from falling by fall protection systems such as guardrails, safety gates, or personal fall protection systems
   ii. Self-contained adjustable scaffold shall have a guardrail system if the platform is support by the frame; if supported by a rope system, a personal fall arrest system and guardrail system must be used
   iii. When guardrails are not feasible, personal fall protection systems shall be used and attached by lanyard to a vertical lifeline, horizontal lifeline, or scaffold structural member
iv. Under no circumstances shall a personal fall protection systems be attached to a handrail
v. No scaffold shall be erected, moved, dismantled, or altered except under the supervision of a competent person
vi. Scaffolds shall not be altered or moved horizontally while they are in use

J. Aerial Work Platforms (AWP’s)
Refer to Northwestern University Aerial Work Platform Program for specific information. Personal fall arrest systems are required on articulating and telescopic type booms and when working beyond the footprint of an aerial work platform.

K. Weather Considerations
When exposed to any fall hazards, employees are prohibited from working outdoors during storms and/or high winds. Weather forecasts should be examined prior to the commencement of outdoor work and consideration should be given to suspending work if wet or icy conditions exist that increase the hazards.

V. Rooftop Work
Northwestern has various types of roofs and structures. With proper training and equipment, FM employees are permitted to work on roofs that are designated as low-slope. A low slope roof is defined as having a slope less than or equal to 4-inches of vertical rise for every 12-inches of horizontal length. When allowed, work may be performed under the following conditions:

A. When work is less than 15 feet from the edge:
   Must use guardrail system, travel restraint, or personal fall arrest system

B. When work is more than 15 feet from the edge:
   i. Must use guardrail system, travel restraint, or personal fall arrest system, or;
   ii. May use a work rule, authorized by a competent person and supervisor, prohibiting employees from going within 15 feet of the roof edge if the work is both infrequent and temporary. The work rule may be established in a written work procedure or pre-job briefing for the supervisor to review with all employees performing the work. The work rule is not a substitute for fall protection and may only be used after evaluating the hazards.

C. Signage
   All rooftops where personnel have potential exposure to fall hazards, regardless of distance to the fall hazards, must have signage posted in a conspicuous manner at the roof access point (e.g.: hatch, window, door) with the wording: ‘Danger, roof access, authorized personnel only.’ See signage example in Appendix 2.

VI. Fall Protection Systems
A. General
   There are various types of fall protection systems, such as guardrails, personal fall arrest systems, and personal fall restraint systems.
   i. All personal fall protection systems and their components must be ANSI-approved and must not be used for any other purpose, such as hoisting equipment or materials
   ii. Selection of fall protection systems should be based on a fall hazard assessment (Appendix 1)
which includes the type of work performed, location, environment, and fall distance

iii. Any 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

B. Guardrail Systems
   i. Guardrail systems are the first line of defense against fall hazards
   ii. Provide a barrier to prevent employees from falling to lower levels and designates an area in which work may take place without the use of additional fall protection equipment
   iii. Consist of a top-rail, mid-rail, and intermediate vertical members
      a. Top-rails must be 42” +/-3” in height and a minimum of 0.25” in diameter
      b. Mid-rails must be used when there is no wall or parapet at least 21” high; mid-rails must be midway between top edge of the guardrail system and the walking/working surface and a minimum of 0.25” in diameter
      c. Screens, solid panels, or mesh may be used instead of mid-rails and must extend from the walking/working surface to the top rail
      d. Vertical members are to be no more than 19” apart
   iv. Guardrail systems must be able to withstand a force of 200lbs applied in a downward or outward direction
   v. Mid-rails, screens, mesh, and intermediate vertical members must be able to withstand a force of 150lbs applied in a downward or outward direction

C. Personal Fall Protection Systems
   Use engineering controls, such as guardrails, when feasible. If not feasible, use personal fall arrest or fall restraint systems. Ropes, belts, lanyards, and harnesses used for personal fall protection must be compatible with all connectors, anchors, and lifelines used and protected from damage, such as cuts, abrasions, or melting.

D. Designated Areas
   Designated areas are not conventional fall protection systems or engineering controls. They are alternative fall protection methods that are effective only when set up and used correctly and safely. Risk Management must approve all uses of Designated Areas.

E. Protection from Falling Objects
   Employees must wear proper head protection when exposed to falling objects. In addition, protect employees from falling objects by implementing one or more of the following:
   i. Erecting toe boards, screens, or guardrail systems to prevent objects from falling to a lower level
      a. Toe boards must have a minimum vertical height of 3.5” and no more than a 0.25” clearance or opening above the walking/working surface
      b. Toe boards must be solid or must not have any opening that exceed 1” at its greatest diameter
      c. Toe boards must be able to withstand a force of at least 50lbs applied in any downward or outward direction
      d. Guardrail openings must be small enough to prevent objects from falling through
   ii. Erecting canopy structures and keeping potential falling objects far enough from an edge, hole, or opening to prevent them from falling to a lower level. Canopies must be strong enough to prevent collapse and to prevent penetrations by falling objects
   iii. Barricading the area into which objects could fall, prohibiting employees from entering
the barricaded area, and keeping objects far enough from an edge or opening to prevent them from falling to a lower level

F. Ladder Safety System
   i. Allows the employee to climb up and down using both hands and does not require the employee continuously hold, push, or pull any part of the system while climbing
   ii. Requires the use of a body harness that is connected to the rigid or flexible carrier or lifeline along the length of the ladder
   iii. If inspection and certification information is unavailable, the ladder safety system may not be used. Refer to Section VII for maintenance and additional inspection criteria.

VII. Maintenance, Inspections, and Certifications

A. Permanent Fall Protection Systems (anchors, lifelines, rope descent systems, etc.)
   i. Inspected and certified by a qualified person
   ii. Each anchor must be identified, tested, certified, and maintained to be capable of supporting at least 5,000 pounds, in any direction, for each employee attached
   iii. If inspection and certification information is unavailable, the fall protection systems may not be used
   iv. Annually inspected by a qualified person and maintained in accordance with the manufacturer guidelines and recommendations
   v. Re-certification must be performed by a qualified person who is certified through the manufacturer and must be completed:
      a. At least every 10 years, or sooner as needed
      b. As required by the manufacturer
      c. If the system has been placed under tension as a result of a fall (system must not be used until re-certified)
   vi. Inspected by a competent person prior to each use for wear, damage, and other deterioration
   vii. Any defective components must be removed from service immediately and marked or identified
   viii. Any defective components found may not be used until repaired or replaced and inspected and certified by a qualified person
   ix. Guardrail systems and parapets must be visually inspected by a competent person prior to any work; any deterioration or deficiencies which may cause the fall protection system to fail must be noted and corrected prior to work commencing
   x. Temporary fall protection equipment, such as warning lines, must be installed and inspected by a competent person upon erection and before each use

B. Personal Fall Arrest and Fall Restraint Systems
   i. Inspect prior to each use for wear, damage, and other deterioration
   ii. Defective components shall be removed from service or destroyed
   iii. Store in a well-ventilated, clean, dry area free from temperature and humidity extremes, corrosive materials, or other contaminants
   iv. Maintain in accordance with the manufacturer guidelines and recommendations
VIII. Post-Incident
i. Permanent fall protection systems, such as anchors or lifelines, involved in a fall occurrence may not be used until inspected, repaired, or replaced if necessary, and re-certified by a qualified person
ii. Immediately remove all fall protection equipment, such as body harnesses, lanyards, and self-retracting lifelines (SRL’s) involved in a fall occurrence, from service. Equipment must be inspected by a competent person prior to returning back into service or if damaged, it must be repaired or replaced
iii. Temporary fall protection systems, such as warning lines, placed under tension as a result of an accident or near miss, must be re-inspected prior to returning to service

IX. Rescue
Specific rescue procedures must be established and discussed anytime work involves fall hazards greater than 4 feet. This may be done verbally at pre-job meetings or in written form and distributed/discussed. Develop procedures based on the tasks performed, the surrounding environment, and availability of resources to ensure the safest method of rescue is employed. Sufficient means for communication in the event of a fall shall always be in place. In the event of fall requiring rescue, contact Northwestern Police immediately.

X. Training
A. Authorized Persons
i. Authorized persons will be trained in:
   a. Recognizing and evaluating fall hazards and control methods
   b. Proper use, inspection, maintenance, and storage of fall protection equipment or systems
   c. Understanding fall protection system limitations and proper hook-up, anchoring, and tie-off techniques
ii. Training is required when any of the following scenarios occur:
   a. New employee on-boarding
   b. Job-transfer that results in the potential for an employee to be exposed to fall hazards
   c. Whenever a competent person deems training to be necessary
iii. Authorized person training will be delivered by any of Northwestern’s competent persons

B. Competent Persons
i. Competent persons will be trained in:
   a. All of the responsibilities and requirements of authorized persons
   b. Supervision of authorized persons performing work at heights and using fall protection systems
   c. Fall hazard elimination and control methods
   d. Completing fall hazard surveys, fall protection plans, and rescue procedures
ii. Risk Management will deliver competent person training and certify employees as a competent person
iii. Competent person training is a pass/fail course
C. Refresher training
   i. Competent and authorized persons receive refresher training every three years, at a minimum
   ii. Authorized person refresher training will be delivered in a classroom setting, by FM supervisors
   iii. Competent person refresher training will be delivered in a classroom setting, by Risk Management

D. Re-training
   Re-training will be given to any authorized person if and when any of the following scenarios occur:
   i. Changes in the workplace or types of fall protection systems/equipment render previous training obsolete or inadequate
   ii. When inadequacies in an affected employee's knowledge or use of fall protection systems or equipment indicate that the employee no longer has the requisite understanding or skill necessary to use equipment or perform the job safely
   iii. Post-incident

XI. New Construction and Renovation Projects
   Refer to Northwestern Design Guidelines for Safe Access and Fall Protection.

A. Design
   Permanent fall prevention/protection measures must be included as an integral part of the design phase for all construction and renovation/repair projects. All walking/working surfaces where employees are exposed to fall hazards (i.e. roof systems, ladders, skylights, and floor openings) shall be permanently guarded or have qualified anchorages for personal fall arrest systems.

B. Operations and Maintenance
   All safe access and fall hazards associated with operations and maintenance must be identified, and design measures must be instituted to mitigate these hazards. It is essential to solicit comments from Facilities Management Operations and Risk Management Services concerning specific needs for safe access. A complete understanding of the work procedures, building maintenance, and equipment service activities will enable the design team and/or qualified person to select the most appropriate fall protection system.

C. Compliance
   All new construction projects and renovations, alternations or repairs of existing roof systems, or roof-mounted equipment must comply with the OSHA regulations and applicable building codes. In addition, any equipment installations or renovations of equipment that would subject personnel to fall hazards must incorporate fall protection solutions into the project design phase.

D. Qualified Person
   A qualified person with extensive experience in fall protection is required to plan, evaluate, design, and select the most appropriate fall prevention/protection solution. Building anchorages, tie-downs, and any other affected parts of the building shall be designed and certified by a registered Professional Engineer (PE) currently registered in Illinois with expertise in fall protection systems. Inspect and certify all systems in accordance with Section VII of this program.
XII. Recordkeeping

A. Facilities Management
   i. Provide departments and contractors with the permanent fall protection system documentation associated with buildings, upon request
   ii. Maintain applicable records for permanently installed fall protection systems including:
      a. Building name and number
      b. Type of fall protection system installed
      c. Certificate of inspection
      d. Equipment manufacturer
      e. Date of installation
      f. Company that installed the system
      g. Name and contact information of certifying engineer who certified the equipment
      h. Date of last certification/recertification
   iii. Maintain employee training records
   iv. Maintain fall protection equipment records such as certifications, inventories, and inspection reports

B. Risk Management
   i. Maintain Fall Hazard Assessment Form records
   ii. Maintain the Fall Protection Program

XIII. Regulatory Authority and Related Information

   Occupational Safety and Health Administration 29 CFR 1910 Subpart D – Walking-Working Surfaces
   Occupational Safety and Health Administration 29 CFR 1926 Subpart M – Fall Protection
   ANSI Z359.2 – Minimum Requirements for a Comprehensive Managed Fall Protection Program
   Northwestern University Aerial Work Platform (AWP) Program

XIV. Contact

   For questions regarding fall protection and ladders, please contact Gwen Butler, Director, Environmental, Health and Safety, at gwen.butler@northwestern.edu or 847.491.4936.
XV. Appendix 1 – Fall Hazard Assessment Form

**Fall Hazard Assessment Form**

<table>
<thead>
<tr>
<th>Building and Location</th>
<th>Date(s) Time(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purpose of Work</td>
<td>Department(s)</td>
</tr>
</tbody>
</table>

**Fall Hazard Evaluator(s):**

<table>
<thead>
<tr>
<th>Area Type</th>
<th>Access</th>
<th>Reason for Access</th>
<th>Access</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stairs</td>
<td>Y</td>
<td>Electrical</td>
<td>N</td>
</tr>
<tr>
<td>Fixed Ladder</td>
<td>Y</td>
<td>Mechanical</td>
<td>N</td>
</tr>
<tr>
<td>Portable Ladder</td>
<td>Y</td>
<td>Repairs</td>
<td>N</td>
</tr>
<tr>
<td>Ceiling/Ceiling Opening</td>
<td>Y</td>
<td>Cleaning</td>
<td>N</td>
</tr>
<tr>
<td>Pipe Chaser/Utility Shaft</td>
<td>Y</td>
<td>Servicing/Preventive Maintenance</td>
<td>N</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Potential Hazards:**

- Slips or Sliding Surfaces
- Moving Parts
- Low Light
- Floor Openings/Skylights/Laneways
- Weather Related Hazards (High Wind, Rain, Lightning, etc.)
- Protruding Objects

**Rooftop Determination:**

- Will employees be working within 15 feet from the roof edge? Y N
- Must use guardrails, netting, travel restraint, or personal fall arrest system
- Will employees be working more than 15 feet from the roof edge? Y N
- Must use guardrails, netting, travel restraint, or personal fall arrest system
- Temporary and infrequent work only; No less than 6 feet from edge and not less than 15 feet from other work
- Must have warning line and safety monitor

**Engineering Controls:**

- Guard rail Systems or Parapets (H 2' - 3’)
- Full Body Harness
- Anchors (Must be inspected and certified)
- Shock-Absorbing Lanyard
- Horizontal Lifeline System (Must be inspected and certified)
- Self-Retracting Lifelines (SRL’s)
- Vertical Lifeline System (Must be inspected and certified)
- Hoist Grab Bars
- Cables (Must support twice intended load and be secured)
- Cable Positioning Lanyard
- Others

**Personal Fall Protection:**

- Other

**Falling Object Controls:**

- Housekeeping
- Toolboxes
- Net/Screen/Canopy
- Railing
- Other

**Rescue Plan:**

- Written (Most Distributions to All Personnel/Departments Involved)
- Work May Proceed with Above Selected Controls and Equipment
- Virtual (Teleconference/Pre-Job Meeting, etc.)
- N/A to Above, Select Hazards(s) Below or Use Comments Section

**Final Determination:**

- Equipment Needed
- Training Needed
- Certification/Inspection Needed
- Rescue Plan Needed
- Other (Specify Below)

**Comments:**

**Assessment Certification:**

We certify that we have conducted a fall hazard assessment of the above location and have detailed the findings of the assessment on this form.

Requestor: (PRINT)

(SIGN):

Risk Management Representative: (PRINT)

(SIGN):

Northwestern
Appendix 2 – Fall Hazard Signage Example