SECTION 6 - FALL PROTECTION PLAN

Regulatory Basis: 29 CFR 1926 Subpart M - 29 CFR 1926.501 (Duty to Have Fall Protection), 29 CFR 1926.502 (Fall Protection Systems Criteria), 29 CFR 1926.503 (Training Requirements)

Overview

Falls are the leading cause of death in construction. Demo Company LLC requires fall protection for every employee working at or above 6 feet on any walking/working surface (floors, roofs, platforms, scaffolds, ladders, steel, trenches, etc.).

New York Labor Law Sec. 240 note: In New York, gravity-related hazards are also liability-critical under the Scaffold Law. Owners and general contractors can face strict/absolute liability when workers are injured by falls from elevation or falling objects due to inadequate safety devices. Treat fall protection, hole covers, scaffolds, ladders, material hoisting, and overhead protection as mandatory controls - not optional production items.

No employee may begin work at height without fall protection in place.

Exceptions to the 6-Foot Trigger:

- Scaffolding (Subpart L, 29 CFR 1926.451): Fall protection required at 10 feet for scaffold work. Different PPE options apply (guardrails, personal fall arrest, or fall restraint per scaffold type).
- Steel Erection (Subpart R, 29 CFR 1926.760): The 15-foot exception applies only to steel erection connectors and iron workers actively connecting structural steel. General contractors working on steel erection sites must use the standard 6-foot trigger unless performing connector duties.

Trigger Heights

Work Type	Fall Protection Required
General construction surfaces	6 feet or more
Scaffolding	10 feet or more (scaffold standard) - Demo Company LLC requires at 6 feet
Steel erection	15 feet (some exceptions) - Demo Company LLC requires at 6 feet
Excavations	At all depths adjacent to unprotected edges
Ladders	Follow ladder safety rules - fall protection on top of a platform reached by ladder

Approved Fall Protection Systems

1. Personal Fall Arrest System (PFAS)

A PFAS consists of:

- Full-body harness (29 CFR 1926.502(d)) - no body belts for fall arrest
- Lanyard or self-retracting lifeline (SRL) - shock-absorbing lanyard required when free-fall distance exceeds 2 feet
- Anchorage point - minimum 5,000 lbs per worker OR engineered system with safety factor of 2:1

Before using PFAS, calculate total fall distance:

- Lanyard length + harness/connector deceleration distance + worker height + safety factor
- Worker must not contact lower level or obstruction before arrest is complete

2. Guardrail Systems

Requirements per 29 CFR 1926.502(b):

- Top rail: 42 inches (+/-3 inches) above walking surface
- Mid-rail: approximately 21 inches above walking surface
- Top rail strength: withstand 200 lbs applied in any direction

- Smooth surface - no snags or puncture hazards
- Openings in mid-rail systems: no pass-through of 19-inch sphere

3. Safety Net Systems

Per 29 CFR 1926.502(c):

- Installed as close as possible below the work surface - within 30 feet maximum
- Extend outward from outermost projection: minimum 8 feet for 5-foot drop; more for greater drops
- Tested per ANSI A10.11
- Inspected weekly and after any impact loading

4. Covers for Holes and Openings

Per 29 CFR 1926.502(i):

- Covers are secured and clearly marked "HOLE" or "COVER"
- Designed to support twice the weight of employees, equipment, and materials that may be imposed
- Hole covers are never removed without fall protection in place

Controlled Access Zone (CAZ)

A CAZ may be used only for certain leading edge, precast concrete, and residential construction work where conventional fall protection is infeasible. CAZ requirements:

- Control line distance from unprotected edge varies by work type:
- Leading edge work (29 CFR 1926.502(g)(2)): 6 to 25 feet
- Precast concrete erection (29 CFR 1926.502(g)(3)): 6 to 25 feet
- Overhand bricklaying (29 CFR 1926.502(g)(4)): 10 to 15 feet
- Control line at 39-45 inches in height, flagged every 6 feet
- Only designated, trained workers allowed in the CAZ
- Documented in a site-specific fall protection plan

Positioning Device Systems

Per 29 CFR 1926.502(e):

- Used to hold a worker in a working position - not for fall arrest
- Rigged to limit free fall to no more than 2 feet
- Anchorage: minimum 3,000 lbs capacity or engineered system

Warning Line Systems

Warning lines may be used on low-slope roofs (under 4:12) in combination with a safety monitor for roofing work. Not used by Demo Company LLC for general construction unless specifically authorized by Sarah Bennett in a written site plan.

Pre-Work Fall Protection Plan

Before any work at height begins, the supervisor documents:

- Task description and location
- Identified fall hazards (edges, holes, skylights, floor openings)
- Fall protection system(s) selected
- Anchorage points identified and confirmed adequate
- Equipment inspected and assigned to named workers
- Rescue plan in place

Site-Specific Fall Protection Plan must be signed by Sarah Bennett and kept on site.

Harness Inspection Checklist

Before every use, inspect:

- ☐ Webbing - no cuts, fraying, burns, or chemical damage
- ☐ Stitching - no broken or loose stitches
- ☐ Hardware - buckles, D-rings free of distortion, corrosion, cracks
- ☐ Labels - ANSI designation and manufacture date visible
- ☐ SRL/Lanyard - no kinks, damage, or improper modifications
- ☐ Shock absorber - intact, not deployed (deploy = retire the harness)

Any harness that has arrested a fall is immediately removed from service and tagged "DO NOT USE - Fall Arrested."

Rescue Plan

Before working at height, the supervisor confirms:

- Who performs rescue and how (ladder, aerial lift, rescue rope system)
- Equipment available on site for prompt rescue
- Emergency call procedure: call 911 immediately for any medical emergency, then notify John Carter
- Location of nearest hospital: NewYork-Presbyterian / Weill Cornell Medical Center

Suspension trauma (harness hang syndrome) is a medical emergency. If a worker is suspended in a harness after a fall, rescue must occur within minutes. Do not leave the suspended worker hanging while waiting for emergency services - use the site rescue plan.

Rope-assisted rescue procedures shall comply with ANSI Z359.4 (Safety Requirements for Assisted-Rescue and Self-Rescue Systems) and be practiced during annual rescue training.

Fall Protection Training

Per 29 CFR 1926.503, all employees exposed to fall hazards receive training before beginning work. Training covers:

- Nature of fall hazards on the specific work site
- Correct procedures for erecting, maintaining, disassembling, and inspecting fall protection systems
- Proper use and fit of personal fall arrest equipment
- Role and limitations of each fall protection system
- Fall rescue procedures

Training is documented. Retraining required when employee inadequacy is observed or work conditions change.

SECTION 7 - EXCAVATION & TRENCHING SAFETY

New York 811 / Code Rule 753: Before any excavation, trenching, boring, demolition, grading, auguring, drilling, backfilling, or similar ground disturbance, contact New York 811/the applicable one-call center at least 2 working days (48 hours), excluding weekends/legal holidays, and no more than 10 working days before work. Document the ticket number and utility markings before excavation begins.

Regulatory Basis: 29 CFR 1926 Subpart P - 29 CFR 1926.650 (Scope, Application, Definitions), 29 CFR 1926.651 (Specific Excavation Requirements), 29 CFR 1926.652 (Requirements for Protective Systems)

Overview

Excavations and trenches are among the most hazardous operations in construction. A cubic yard of soil weighs approximately 2,700-3,000 lbs - a cave-in can be immediately fatal. No worker enters any trench or excavation 5 feet or deeper without a protective system in place.

Competent Person Requirement

All excavation work is performed under the direct supervision of a Competent Person (29 CFR 1926.650). The Competent Person:

- Has training and experience in soil classification
- Understands OSHA excavation standards and has authority to shut down work immediately
- Classifies soil before work begins on every new trench or excavation
- Inspects excavations daily, before each shift, and after any event (rain, freeze-thaw, vibration, material stockpiling)

Designated Competent Person for Excavation: _____

Before Digging - Pre-Excavation Requirements

1. Contact 811 before you dig. New York law requires at least 2 business days advance notification before any excavation. Failure to notify is a violation that can result in fines, liability for damage, and criminal penalties.
2. Wait for utility marking (flags, paint)
3. Manually dig or use soft-dig in vicinity of marked utilities
4. Check for overhead power lines - maintain minimum clearances
5. Assess site for existing structures, buried tanks, previous fill areas
6. Identify soil type and appropriate protective system before first bucket

Soil Classification

Per 29 CFR 1926.652 Appendix A:

Type	Description	Characteristics
Type A	Most stable	Clay, glacial till - no cracks, not subject to vibration
Type B	Medium stability	Angular gravel, silt, previously disturbed soil
Type C	Least stable	Granular soil (sand, gravel), wet soil, running or seeping water

When in doubt, classify as Type C - the most conservative, most protective.

Soil classification is performed by the Competent Person using:

- Visual observation of soil characteristics
- Manual tests: thumb penetration, pocket penetrometer, torvane

Protective Systems

The Competent Person selects the appropriate protective system based on soil type and excavation depth.

Note: 29 CFR 1926 Subpart P governs all private-sector excavation requirements in New York. Municipal excavation permits may be required depending on project location - contact the local building department before beginning excavation in public rights-of-way or near municipal infrastructure.

Option 1 - Sloping and Benching (29 CFR 1926.652 Appendix B)

Maximum slopes for workers in excavation:

Soil Type	Maximum Slope (H:V)	Angle from Horizontal
Type A	3/4:1	53°
Type B	1:1	45°
Type C	1.5:1	34°
Rock (stable)	Vertical (90°)	90°

Benching only permitted in Type A and Type B soil - never in Type C.

Option 2 - Shoring (29 CFR 1926.652 Appendix C)

- Timber shoring, hydraulic shoring, or pneumatic shoring installed per OSHA Appendix C tables
- Hydraulic shoring: install from the top down, remove from bottom up
- Shoring inspected daily by Competent Person

Option 3 - Trench Box / Shield (29 CFR 1926.652 Appendix D)

- Shield designed and approved for the soil conditions and trench depth
- Workers operate inside the shield - do not work outside the protection of the shield
- Shields not used as a shoring substitute - move forward as work progresses
- Maximum height above top of shield: 18 inches (soil must not extend above the shield without sloping)

Egress and Access

- Safe means of exit (ladder, ramp, stairway) within 25 feet of every worker in excavation 4 feet or deeper
- Ladder extends minimum 3 feet above top of excavation
- Never jump across trenches

Hazardous Atmosphere Testing

Excavations deeper than 4 feet that may contain hazardous atmospheres (near utility lines, landfills, sewers, organic material) must be tested for:

- Oxygen content (>=19.5%, <=23.5%)
- Combustible gas (< 10% LEL)
- Carbon monoxide (< 35 ppm)
- Hydrogen sulfide (< 10 ppm)

Testing performed by Competent Person with calibrated instruments before entry and continuously during work. If hazardous atmosphere detected: evacuate immediately, ventilate, retest before re-entry.

Spoil Placement

- Excavated material (spoil) placed minimum 2 feet from the edge of the trench
- Heavier equipment kept farther back - surcharge load increases cave-in risk
- Never stockpile spoil on the downhill side of a slope

Water in Excavation

- Do not enter excavations with accumulated water unless supervised by Competent Person with adequate protection
- Control surface water: divert runoff, use pumps
- Inspect closely after rainfall - water weakens soil significantly

Equipment and Vehicles

- Equipment operating near excavations: maintain safe distance - consult Competent Person
- Stop logs or barricades where vehicles travel near trench edge
- Barricade or fence excavations when left unattended (especially overnight)
- Warning signs and lighting for unattended excavations

Excavation Daily Inspection Form

Date: _____ Site: _____

Competent Person: _____

- ☐ 811 call made and utilities marked
- ☐ Soil classified - Type: _____
- ☐ Protective system installed: [ ] Slope [ ] Shore [ ] Shield
- ☐ Spoil 2+ feet from edge
- ☐ Egress within 25 feet
- ☐ Atmosphere tested (if > 4 feet): O2 ___% CO ___ppm H2S ___ppm
- ☐ Water controlled
- ☐ Overhead hazards clear
- ☐ Barricades in place at edges

Sign-off: _____ Time: _____

Excavation Competent Person - Certification and Designation

Demo Company LLC designates trained Competent Persons for excavation before any trenching or excavation work begins. The Competent Person has demonstrated the following qualifications:

Knowledge Requirements:

- OSHA 29 CFR 1926 Subpart P standards in full
- Soil classification methods (Types A, B, C) and how to classify using both visual and manual tests
- Protective systems: sloping tables, shoring specifications, trench box deployment
- Atmospheric testing: oxygen, combustible gas, toxic gas (H2S, CO)
- Utility coordination (811 requirements, safe digging near utilities)
- Water control and drainage
- Vehicle and surcharge load hazards

Authority Requirements:

- Has authority to immediately stop work and correct unsafe conditions
- Supervisors and crew must follow Competent Person's safety directives
- Competent Person's findings are documented in the daily excavation inspection log

Training Sources (acceptable):

- OSHA 10-Hour or 30-Hour Construction (foundational)
- Trench Safety Competent Person training course (provider certificate required)
- Employer-documented on-the-job training with demonstrated competency verification

Confined Space Awareness in Excavation

Some excavations qualify as confined spaces (limited entry/exit, not designed for continuous occupancy, potential for hazardous atmosphere). If an excavation has:

- Limited means of entry/egress AND
- A potential for hazardous atmosphere (near sewers, landfill, organic material, utility lines)

...it may require permit-required confined space procedures under 29 CFR 1926.1200-.1213.

Sarah Bennett evaluates whether excavations require confined space permit procedures. When in doubt: test the atmosphere and treat as permit-required.

Excavations 20 Feet or Deeper: Excavations 20 feet or deeper require protective systems designed by a registered Professional Engineer per 29 CFR 1926.652(b)(1) and (c)(1). No tabulated data or manufacturer specifications may be used for excavations at this depth without PE review and approval.

Emergency Response and Rescue Planning

Before trench entry, the Competent Person must confirm emergency response arrangements for the excavation. Workers must not attempt untrained trench-collapse rescue or enter an unprotected collapse area. If a cave-in, hazardous atmosphere, water accumulation, utility strike, or other excavation emergency occurs:

- Stop work, remove exposed workers from the excavation area, and call 911/site emergency contacts.
- Keep workers out of the trench until the excavation is protected and qualified responders control rescue operations.
- Preserve utility-mark, inspection, and locate-ticket information for responders when it is safe to do so.
- Provide readily available rescue equipment, such as breathing apparatus, harness and line, or basket stretcher, where hazardous atmospheres exist or may reasonably develop during excavation work (29 CFR 1926.651(g)(2)).

SECTION 8 - CRANE AND HOISTING SAFETY PROGRAM

Regulatory Basis: 29 CFR 1926 Subpart CC (1926.1400-.1442 - Cranes and Derricks in Construction); 12 NYCRR Subpart 61-3 (NYS Crane Operator Certificate); NYC Administrative Code / Building Code (HMO License, Crane Permits); Industrial Code Rule 23-8 (Hoisting Apparatus)

Scope

All crane, derrick, and hoisting operations on Demo Company LLC projects. Applies to all equipment covered by 29 CFR 1926.1400-1442, including mobile cranes, tower cranes, derricks, float cranes, and overhead/gantry cranes used in construction. Sarah Bennett is the program administrator responsible for ensuring compliance with this section.

Operator Qualification

All crane operators must hold valid certification from an accredited testing organization per 29 CFR 1926.1427:

- NCCCO (National Commission for the Certification of Crane Operators), CIC (Crane Institute Certification), or OECP (Operating Engineers Certification Program)
- Certification must match the equipment type and capacity being operated
- NYS DOL Crane Operator Certificate required per 12 NYCRR Subpart 61-3 for crane operation in New York State
- NYC projects: NYC Department of Buildings Hoisting Machine Operator (HMO) license required - separate from and in addition to NCCCO/state certification
- Operators must carry valid credentials on site at all times; Sarah Bennett verifies before allowing operation

Pre-Operation Inspection

- Pre-shift visual inspection by the operator per 29 CFR 1926.1412(d) - check control mechanisms, safety devices, air/hydraulic/other pressurized lines, hooks/latches, wire rope, ground conditions
- Monthly documented inspection per 29 CFR 1926.1412(e) - items per manufacturer and OSHA requirements, documented and retained for 3 months
- Annual comprehensive inspection by a qualified person per 29 CFR 1926.1412(f) - documented and retained until next annual inspection
- Do not operate if any deficiency constitutes a safety hazard - take equipment out of service, tag out, notify Sarah Bennett

Lift Planning

Routine lifts: Operator determines load weight (calculated or from shipping documentation), selects crane configuration from the load chart, verifies ground conditions and level, identifies hazards (power lines, personnel, obstructions, weather). Operator has the authority and obligation to refuse any lift deemed unsafe.

Critical lifts - written lift plan required when any of the following apply:

- Lift exceeds 75% of the crane's rated capacity for the configuration
- Lift over occupied areas or active roadways
- Tandem/multi-crane lifts
- Lifts near energized power lines (within twice the minimum approach distance)
- Lifts involving personnel platforms
- Lifts requiring non-standard rigging or unusual load geometry

Written critical lift plan prepared by a qualified person and reviewed by Sarah Bennett before execution. Plan includes: load weight, crane configuration, load chart verification, rigging plan, ground conditions, clearances, personnel exclusion zones, communication plan, and contingencies.

Load Charts and Rated Capacity

- Load chart must be posted in the cab and legible at all times
- Operator must verify that load weight does not exceed the rated capacity for the current configuration (boom length, radius, quadrant of operation, outrigger position)
- Never exceed rated capacity - no exceptions
- When approaching 75% of rated capacity, stop and evaluate whether a critical lift plan is required

Ground Conditions and Setup

- Evaluate ground bearing capacity before crane setup - competent person assesses for voids, underground utilities, recent excavation, soft soil, slopes
- Use outrigger pads or mats sized to distribute loads within ground bearing capacity
- Level the crane per manufacturer specifications - verify with level indicators
- Outriggers fully extended and set on firm ground unless manufacturer allows partial extension with corresponding derating
- Maintain cribbing, outrigger pads, and ground preparation equipment on site

Power Line Safety

For crane operations near power lines, refer to 29 CFR 1926.1407-1411 (Subpart CC). The 20-foot presumed energized distance applies up to 350 kV unless the utility confirms de-energization.

Table A minimum clearance distances (29 CFR 1926.1408(b)) - these reduced distances may ONLY be used after the line voltage has been confirmed by the utility; if voltage is unknown, treat as over 350 kV and maintain the maximum safe distance:

Voltage (kV)	Minimum Clearance Distance
Up to 50 kV	10 feet
Over 50 to 200 kV	15 feet
Over 200 to 350 kV	20 feet
Over 350 to 500 kV	25 feet
Over 500 to 750 kV	35 feet
Over 750 to 1,000 kV	45 feet

- Default 20 feet when line voltage is unknown
- Dedicated spotter or proximity alarm/device required when operating within the trigger distance (Table A of 1926.1408)
- Conduct a power line hazard assessment before crane setup - determine if it is possible to maintain required clearances; if not, work with the utility for de-energization or relocation
- See also Section 10 (Electrical Safety Program) for company overhead power line clearance policy

Signal Person

A qualified signal person is required when the operator cannot directly see the load, the load's travel path, or the landing zone (29 CFR 1926.1419-1422):

- Signal person must be qualified per 29 CFR 1926.1428 - either third-party qualified or employer-qualified by documented evaluation
- Use standard hand signals per ASME B30.5; non-standard signals agreed upon and documented before use
- Signal person positions where visible to operator and with clear view of load and landing zone
- Only one person gives signals at a time (except for emergency stop - any person)

Assembly and Disassembly

- Directed by an assembly/disassembly director (A/D director) per 29 CFR 1926.1404
- A/D director must meet the competent person and qualified person requirements for the specific equipment
- Follow manufacturer procedures - deviations only when manufacturer procedures are unavailable and the A/D director develops site-specific procedures meeting 1926.1404
- Maintain minimum crew sizes per manufacturer and A/D director assessment
- Pin and bolt verification before operation after assembly

Rigging for Crane/Derrick Loads

- Only qualified riggers per 29 CFR 1926.1401 may perform rigging for crane and derrick loads
- Inspect all slings (wire rope, synthetic, chain, metal mesh) before each use per 29 CFR 1926.251 - remove from service if damaged, kinked, bird-caged, crushed, corroded, or showing broken wires exceeding limits
- Know and do not exceed rated capacities for slings and hardware (shackles, links, hooks, swivels)
- Use proper hitch configurations (vertical, choker, basket) with correct sling angles - sling angles below 30° from horizontal are prohibited unless the rigging is specifically rated for the applied load
- Tag lines to control loads - never wrap tag lines around hands or body

NY-Specific Requirements

- NYS DOL Crane Operator Certificate (12 NYCRR Subpart 61-3) required for all crane operations in New York State