

APPENDIX L
LOCK OUT
TAG OUT

E. W. HOWELL CO., LLC

Project Title: NSLS II-LOB

Location: BNL, Upton, NY

HAZARDOUS ENERGIES CONTROL AND LOCKOUT/TAGOUT PROGRAM

Summary: This program applies to the installation, service, maintenance, or removal of any type of machinery, equipment or components, in which the unexpected start-up or release of stored energy could cause injury.

1. Program Description
2. Scope
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5. Program Components
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1. Program Requirements

It is our goal at E. W. Howell to control hazardous energies in the workplace to the greatest extent feasible. E. W. Howell has developed a Hazardous Energies Control and Lockout/Tagout Program to ensure that our employees and subcontractors are protected from hazardous energies in the work environment. E. W. Howell is required to provide and maintain a Hazardous Energies Control and Lockout/Tagout Program for all operations where employees or subcontractors may be potentially exposed. This program is available, upon request, to any E. W. Howell employee or subcontractor.

2. Scope

This program applies to the installation, service, maintenance, or removal of any type of machinery, equipment, or components in which the unexpected start-up or release of stored energy could cause injury.

This program is applicable to all employees at E. W. Howell and subcontractors. The purpose of this program is to prevent injuries and accidents from occurring while:

- Servicing or maintaining machinery or equipment that is capable of sudden energy releases; and
- Working with machinery or equipment that is capable of storing hazardous energy

Note: Stored energy may be in the form of electricity (capacitors), air pressure (pneumatic), liquid pressure (hydraulic), springs or potential energy of position, but is not limited to the above.

This program requires a systematic approach to servicing and maintaining equipment and strives to ensure the safety of all E. W. Howell personnel and subcontractors, and compliance with the applicable regulations. This approach involves: following approved written equipment-specific procedures to shut down and lock out equipment and machinery, dissipating all hazardous energy, blocking parts where necessary, and verifying that the energy has been controlled before all work is initiated.

Persons who fail to follow established written procedures for lockout of equipment and machinery, or who fail to take appropriate steps to protect the safety of all persons who are performing work under locked out conditions are subject to disciplinary action. This includes persons performing lockout that are not previously trained and authorized, working on the E. W. Howell site who do not follow established policies and procedures.

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No employee shall install, service, remove, or perform electrical or mechanical maintenance on any electrical equipment or machinery until that equipment is turned off or de-energized, all stored hazardous energy has been bled down, dissipated, or blocked off, and the machinery has been locked out and blocked as provided in the section below.

Such work may be performed on circuits and systems operating at a sustained voltage of less than 30 volts or where there is no risk of exposure to electric arcs or burns without locking out the electrical energy source.

Lockout is required for mechanical service and maintenance operations if the procedures to be performed could involve employee exposure to energized electrical parts, to machinery that could unexpectedly start up, or to a stored energy source on the equipment or machinery.

Servicing or maintenance on equipment that is powered through an electrical cord and plug shall be worked on with the cord unplugged. The person performing the work must have exclusive control of the plug at all times. If necessary, this can be accomplished by applying some form of a plug lock or cord cap lock-over device that is secured with the worker's personal lock and tag.

3. Definitions

Affected and Other Employee – Any employee in an office or industrial setting who works around outlets, electrical panels, or electrical switches, and whose job requires them to be near or around the hazard zone (but not within the hazard zone) when equipment is being serviced or maintained under a locked-out or tagged-out condition. For example, a machine operator that must stay near the machine during a lockout is classified as an Affected Employee. Office staff working on computers and electrical equipment when nearby equipment is being serviced or maintained during a lockout are also classified as Affected Employees. The Affected Employee must be instructed never to attempt to re-start or re-activate equipment that is locked out or tagged out.

See also the definition for "Authorized Lockout/Tagout Employee".

Assigned Individual Lock – A padlock issued to an employee for which no other person has the key, combination, or means of opening without using destructive force. The lock shall be uniquely identified and shall not be used for any other purpose.

Authorized Lockout/Tagout Employee – A person who has completed the required hazardous energy control training and is authorized to lockout or tagout a specific machine or equipment to perform service or maintenance. A person must be certified as an Authorized Lockout/Tagout Employee in order to apply a lock or tag to control hazardous energy. All Authorized Lockout/Tagout Employees must be trained in:

- Advanced Electrical Safety/Lockout/Tagout Training; and
- Equipment specific procedures in their individual work units.

"Capable of Being Locked Out" – An energy isolating device will be considered capable of being locked out if it is designed with a hasp or other means of attachment to which, a lock can be affixed, or if it has a locking mechanism built into it. Other energy isolating devices are capable of being locked out, if lockout can be achieved without the need to dismantle, rebuild, or replace the energy-isolating device or permanently alter its energy control capability. An appropriate lockout attachment, designed for such an application, is available through a supplier.

Energy Forms:

- Electrical – Low voltage is when the potential is greater than 30 volts RMS or direct current, but less than 600 volts; high voltage is when the potential is greater than 600 volts; high current is when 25 amperes or greater exists at any voltage

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- Chemical – Explosion, pressure, extreme heat, fire, corrosive, reactive, oxidizer, toxic
- Pressure – greater than one atmosphere, can be in the form of pneumatic pressure, hydraulic pressure, or liquid pressure
- Vacuum – less than one atmosphere
- Ionizing Radiation – greater than 2 milliRem per hour
- Non-Ionizing Radiation – Ultraviolet greater than the ACGIH TLV, Infrared, RF/Microwave, Laser, Magnetic Fields
- Potential – Flywheels, springs, differences in elevation, elevated parts that could drop, capacitors, batteries.

Energy Isolating Device – A mechanical device located at an energy control point that positively blocks the flow of energy and can be locked in the “safe” position. Push buttons, selector switches, software controls, interlocks, and other control circuit devices are not considered energy isolating devices.

Hazardous Energy – Energy, if not controlled, of such a magnitude that it is capable of causing harm to a person, death, or loss of resources.

Hazardous Energy Control – The process of systematically implementing mechanical means to prevent hazardous energy from flowing to a person. This includes using mechanical means to achieve the following conditions:

- **Isolated** – A condition where all sources of hazardous energy have been controlled by breaking the energy path so that the energy cannot flow to workers. The term “isolated” is commonly used with electrical circuits and fluid lines.
- **Dissipated** – A condition where all stored energy has been reduced to a non-hazardous level. Most commonly used with energy storing devices such as capacitors, pressure receivers, or springs.

Blocked – A condition where a mechanical device is inserted into the energy path to physically prevent movement. Most commonly used with mechanical machinery or fluid filled lines.

Hazard Zone – The space around a source of hazardous energy where a person could be harmed if the hazardous energy was suddenly or unexpectedly released; such as the unexpected release of stored pressure, the unexpected movement of a machine, or the spray from a hazardous chemical that was unexpectedly released.

High Voltage System – Associated electrical conductors and equipment operating at or intended to operate at a sustained voltage of more than 600 volts.

Lockout – The method of applying a mechanical lockout device and a tag on an energy-isolating device by an authorized employee in accordance with established written procedures, in order to control hazardous energies.

Lockout Device – Padlocks, combination locks, or other methods (such as disconnecting conductors or removing fuses), which will effectively prevent unexpected or inadvertent energizing of a designated circuit or release of equipment or machinery. These devices shall not be used for other purposes, and shall include a means to indicate the identity of the employee applying the device.

Low Voltage System – Associated electrical conductors and equipment operating at or intended to operate at a sustained voltage of 600 volts or less.

Normal Production, Normal Production Operation – Using a machine or piece of equipment for its intended or designed production function. If a machine or piece of equipment is not actively producing its product, it is not considered to be in production.

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Qualified High Voltage Electrical Worker – A person who has a minimum of two years of training and experience with high voltage circuits (> 600 volts) and equipment and who has demonstrated he/she is familiar with the work to be performed and the hazards involved. A Qualified High Voltage Electrical Worker will actually be performing the electrical work. All Qualified High Voltage Electrical Workers must be trained in:

- Advanced Electrical Safety/Lockout/Tagout Training;
- Hazardous Electrical Voltage Training; and
- Equipment specific procedures in their individual work units.

Tagout – The placement of a tagout device on an energy-isolating device in accordance with established written procedures to control hazardous energy. Using tagout as a form of hazardous energy control is not a positive means of controlling hazardous energy and shall not be used whenever lockout is possible.

Tagout Device – A prominent warning tag capable of being securely attached that provides a warning not to use the equipment. The tag should include: reason for tag, name of person placing the tag and how that person may be contacted, and date the tag was placed. Tags must be durable and able to withstand the environment to which they are exposed for the maximum time exposure is expected. These tags shall not be used for other purposes.

Stored Energy Source – Any device that is capable of holding energy after equipment shutdown. This includes, but is not limited to, capacitors, tanks, pipes, springs, and flywheels.

4. Responsibilities

Supervisor Responsibilities for Lockout/tagout procedures:

- Supervisors are responsible for ensuring that all Affected Employees are trained in the safety significance, purpose, and use of these lockout/tagout procedures.
- Supervisors are responsible for ensuring all Authorized Lockout/Tagout Employees receive the appropriate level of training and that these employees are provided with the proper equipment and personal protective equipment (PPE) to perform the job safely.
- Supervisors are responsible for ensuring that only Qualified High Voltage Electrical Workers work on high voltage systems (>600 volts), and only Authorized Lockout/Tagout Employees work on systems that contain hazardous voltages equal to or below 600 volts.

Lockout/Tagout Coordinator Responsibilities

The assigned Lockout/Tagout Coordinator is responsible for:

- Writing equipment specific lockout/tagout procedures;
- Ensuring that only Authorized Lockout/Tagout Employees perform lockout/tagout operations on necessary equipment;
- Maintaining an inventory of all equipment in their department that requires equipment specific lockout/tagout procedures;
- Receiving the appropriate training to become an Authorized Lockout/Tagout Employee and perform lockout/tagout procedures on equipment; and
- Purchasing or installing equipment and machinery to ensure that this equipment or machinery has the capability to accept a lockout device on all energy isolating devices. This will include, but is not limited to, electric power disconnect devices that can be locked only in the open (OFF) position, fluid control components (e.g., valves) that can be locked in the safe position, or fluid lines that have the capability to place a mechanical barrier between a hazardous fluid and the point where work must be performed. Whenever major replacement, repair, renovation, or modification of machines or equipment is to be performed, energy isolating devices for such machinery or equipment shall be installed and be designed to accept a locking device so they are capable of being locked out.

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5. Program Components

Sequence of Hazardous Energies Control Procedure

- 1 - The Authorized Lockout/Tagout Employees performing the work, as well as their supervisor, must create the work plan, written lockout procedures, and physically locate and identify all isolating devices to be sure which switches, valves, or other energy isolating devices apply to the equipment to be locked out.
- 2 - Employees authorized to lockout/tagout equipment must be certain which switch or other energy isolating devices apply to the equipment to be locked out.
 - All energy isolating devices must have labels identifying the equipment supplied and the type and magnitude of energy isolated.
 - CAUTION: Any questionable identification of electrical energy sources must be cleared by the employees with their supervisor before proceeding.
- 3 - Notify all Affected and Other Employees as necessary that a lockout is to be performed. These persons must be informed that they are not to disturb the lockout device or attempt to re-start the equipment until they are informed that the lockout has been cleared and it is safe to resume normal operations.
- 4 - If the equipment is in operation, shut it down using the normal shutdown procedure. Turn the equipment off if there is an off/on switch.
- 5 - Open the circuit breaker, disconnect switch or other energy-isolating device (i.e., turn it to the "OFF" position). Toggle switches, push buttons, and other types of control switches are not energy isolating devices.
- 6 - All energy-isolating devices must be locked out. Lockout the circuit breaker, disconnect switch, or other isolating device in the open ("OFF") position with an assigned individual lock, and attach an identifying tag to the lock. If it is impossible to use a lock, refer to the "Procedure When Physical Locking Is Impossible" section.
- 7 - For electrical equipment which has capacitors that must be manually discharged to assure safe work, open access panels and discharge these capacitors with an appropriate discharge tool and follow directions in the equipment manual or maintenance procedures. This must only be accomplished by a Authorized Lockout/Tagout Employee or Qualified High Voltage Electrical Worker who is authorized to perform such work.
- 8 - All forms of stored energy must then be dissipated (except for batteries which can be disconnected). This may include relaxing any springs, relieving any pressure or vacuum, allowing flywheels to come to rest, or neutralizing or adequately removing any chemicals.
- 9 - Any parts that could inadvertently move during the procedure must be blocked in place to prevent this movement. Blocking must be secured in place so that it cannot be inadvertently removed or fall out.
- 10 - At this point it must be verified that all forms of hazardous energy have been reduced to zero potential. If the work to be performed involves de-energized electrical equipment, this equipment must be tested with some form of test equipment to verify that there is no electrical energy present. Other forms of energy also require verification of zero potential. Examples of such means of verification include: observing a pressure gauge for zero pressure (gauge) or vacuum, observing a multi-meter showing zero volts, observing a spring in a relaxed state, observing that a flywheel is not spinning, or using litmus paper or a measuring device to verify that a chemical is no longer present or hazardous.

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- The final step is to attempt to re-start or re-energize the equipment or machinery to verify an isolated condition. If the equipment does not re-start, then work can proceed. If the equipment re-starts or it appears that energy has been allowed to flow into the system, there could be a serious flaw in the procedure, and no work should proceed until the problem is identified and appropriate steps are included in the procedure to control this energy.
- The equipment is now locked out. Work may now begin.

Situations Involving More Than One Person Locking Out

Employees and/or contractors must engage in a group lockout situation. If more than one employee works on the equipment, a lockout adaptor suitable for the installation of several locks must be used, enabling all workers to lock out the machine with their individual locks.

Procedure Involving Personnel Changes During The Job

Persons being replaced or exchanged on a job during a shift or at the end of a shift must ensure that the lock(s) and tag(s) of his/her replacement are substituted for his/her own before leaving the job. If a lockout procedure is to continue through the following work shift, the oncoming work crews must place their locks and tags on the energy isolating devices before the departing crew removes their locks and tags. Before work begins on the subsequent work shift, the oncoming crew must re-verify that all safety devices, such as blocking, are in place, that there is still zero energy in the system, and they should attempt to restart or re-energize the system before anyone enters the hazard zone.

Procedure When Work Is Left Unfinished

Locks, tags, and all other safety warning devices must be left in place during all short absences such as breaks or trips to pick up parts.

When work is incomplete and temporarily suspended overnight or over a weekend, all locks, tags, and other safety warning devices must be left in place.

When work is suspended for more than a weekend, the equipment or machinery must be tagged as out of service, permanently disconnected from all energy sources, and must have its cover and access panels reinstalled. All locks and other tags must be removed.

Procedure When One Employee Leaves The Area Without Removing His/Her Lock

When an employee leaves the site and does not remove his/her lock(s) from the energy isolating device(s) (for example, if the employee became sick and left the site) then the responsible supervisor must attempt to contact that employee to determine if he/she will be able to return to remove the lock. If it is verified that the equipment is ready to be returned to service, and the employee is unavailable or cannot return, the supervisor must complete the **Abandoned Lock Removal Authorization Form (Attachment B)**, then cut the lock(s) off the energy isolating device(s).

Once the employee returns to the work site, that person must be informed that their lock was removed and the status of the equipment that was locked out (e.g., returned to service, still under lockout, etc.).

Procedure When Physical Locking Is Impossible

When it is impossible to use a lock, a tagout device must be used in lieu of a lockout along with another positive means of disconnecting the circuit, equipment, or machinery. This can include unplugging the equipment (or locking out the plug), disconnecting the conductors, or removing fuses.

All other steps of the process are the same as those listed above for lockout. A tagout device must be placed on the plug, conductors, disconnect switch, fuse brackets, or other positive means employed.

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Procedure When Machine Testing Is Required During A Lockout

On some machines, it may be necessary to energize or start up machinery or equipment during a lockout procedure to tune, adjust, or make measurements before the machine is fully restored to service. In those instances, all persons must clear the hazard zone of all tools and equipment, leave the hazard zone, verify that all persons are clear of any hazards, remove the necessary locks, and then the equipment can be energized. A qualified person must then make the necessary measurements or adjustments and the equipment shut down. The locked-out condition must then be re-established by repeating the exact same work steps specified on the written procedure for fully locking out the equipment.

Lock Out Requirements For Specific Situations

Work on pressure or vacuum systems:

- For pneumatic systems, (e.g., generally where compressed air is used to perform some mechanical function).
- Pneumatic systems are generally used to provide some force for mechanical movement. For isolating such a system, it may be more logical and convenient to isolate (block) and lockout the mechanical portion of the energy path. If servicing or maintenance is to be performed on the pneumatic system itself, the compressor pump must be turned off and locked out and the air receiver or system depressurized before work can begin.

Work on Electrical Power Systems or Equipment:

Work on de-energized electrical equipment or systems must be accomplished by person(s) who are Authorized Lockout/Tagout Employees. Electrical energy must be locked out at a disconnect switch that positively interrupts the circuit supplying the electricity or the equipment is physically disconnected from the source of electricity. Interlocks, software controls, relays, or other control circuit devices are prohibited for use to control hazardous electrical energy for servicing or maintenance. The equipment or circuits must be verified to be de-energized with a test meter or other type of testing device before work is to begin.

Restoring Equipment To Service:

The restoration procedure is specified in the written lockout procedure below, and must be performed in the exact sequence as stated.

- 1 - Remove all blocking and replace any critical parts removed during the lockout procedure.
- 2 - Ensure that all tools or equipment have been removed from the hazard zone.
- 3 - Close and secure all cover panels and doors. If all panels or doors cannot be closed, which may occur when testing, place barricades or rope-off a safety zone with non-conductive material and post prominent warning signs around the area.
- 4 - Advise all Affected and Other Employees that the system is to be re-energized.
- 5 - Ensure all persons are clear of the equipment/hazard zone.
- 6 - Remove locks and tags. NOTE: Ordinarily, only the person who placed the locks and tags may remove them. If the person who placed the locks and tags is not available, only his/her supervisor may cut off the locks and tags, after personally ascertaining it is safe to do so.
- 7 - Energize the equipment and restore the equipment to the normal condition.
- 8 - Notify all Affected and Other Employees that the lockout condition has been cleared.

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This program does not cover the following conditions:

- Certain tasks, such as minor tool changes and adjustments that are part of normal production operations and can be accomplished without removing protective guards or with the use of tools where the employee is not potentially exposed to hazardous energy or inadvertent start up of the equipment.
- Work on electrical equipment or systems where the work must be done on exposed, energized electrical parts or where there may be a potential for electric shock or electric burns. This type of work is to be done only after responsible supervision has determined that the work must be performed with the equipment energized. Only Authorized Lockout/Tagout Employees will be allowed to perform energized electrical work while wearing appropriate protective equipment using approved work techniques.

Enforcement

Supervisors and managers of Authorized Lockout/Tagout Employees shall periodically audit their employees on the job to ensure compliance with lockout procedures.

Employees who fail to adhere to lockout and tagout procedures are subject to disciplinary action.

Any observed deviations from the written lockout procedure or inadequacies in the employee's required knowledge or understanding of their responsibility under the procedure will be noted on the audit form. Refresher training must be conducted to correct these deficiencies.

No employee shall install, service, remove, or perform electrical or mechanical maintenance on any electrical equipment or machinery unless he/she is trained, and "Authorized" for the specific tasks to be performed, which shall include the specific lockout procedures necessary for that task.

6. Reporting Requirements

There is no requirement to report any information to any agency.

7. Training Requirements and Competency Assessment

All Affected and Other Employees must attend training. In order for any worker to be considered Authorized Lockout/Tagout Employees, they must attend an approved Lockout/Tagout Program. The Authorized Lockout/Tagout Employees will be certified to work on equipment that requires Lockout/Tagout procedures. E. W. Howell will require the subcontractor to provide all certifications acknowledging their training. Authorized Lockout/Tagout Employees may then take the Hazardous Electrical Voltage Training to become a Qualified High Voltage Electrical Worker (in addition to other requirements) and work on high voltage equipment and systems.

Employees must participate in refresher training every three years. All procedures must be inspected on an annual basis and as the need arises due to new job assignments, changes in procedures, or changes in equipment that present new hazards. Refresher training will also be conducted when deficiencies are found during the annual program review, when there have been deviations from established procedures, or if the employee's knowledge of the energy control procedures appear to be inadequate.

Training records shall be maintained at E. W. Howell for at least five years.

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HAZARDOUS ENERGIES CONTROL AND LOCKOUT/TAGOUT

Attachment B: ABANDONED LOCK REMOVAL AUTHORIZATION FORM

Note: Only supervisors can remove abandoned locks.

Name of Person whose lock must be removed: _____

Has an attempt been made to contact him or her? YES NO

Why is it critical to remove this lock now?

Are you sure it is safe to remove this lock? YES NO

Supervisor's Name: _____

Signature: _____

Date: _____

Environmental Health & Safety Representative: _____

Signature: _____

Date: _____

APPENDIX M
FALL
PROTECTION

FALL PROTECTION PROGRAM

APPENDIX M

JOB NAME: _____

DATE : _____

Company Name: _____

Purpose

The purpose of this fall protection program is to establish guidelines to protect all employees engaged in outdoor or indoor work activities that expose them to potential falls from elevations.

This fall protection program includes all facilities and employees of this company. In particular those employees engaged in work activities which expose them to falls from heights of 6 feet or more. This Fall Protection Program has been developed to prevent the occurrence of falls from elevations of 6 feet or higher. This goal will be accomplished through effective education, engineering and administrative controls, use of fall protection systems, and enforcement of the program. This fall protection program will be continually improved upon to prevent all falls from occurring.

Regulatory Requirements

This program adheres to the requirements of the OSHA regulations and ANSI standards which apply to this industry and the use of Fall protection equipment and systems within this industry.

See OSHA 29 CFR 1926.500 and related
See also ANSI Z359.2 and related

Types of Fall Protection Systems

- 1) Articulating man lifts provided with a restraint system and full body harness to an anchor point below the waist (preferably at the floor level).
- 2) Guardrails with toeboards.
- 3) Personal fall arrest systems.
 - Anchor points (rated at 5,000 pounds)
 - Full body harness
 - Restraint system
 - Shock absorbing lanyard.
 - Retractable lifeline
 - Rope grabs with vertical lifeling
 - Connectors (self-locking snaphooks and carabiners)
- 4) Engineered Horizontal lifelines.
- 5) Warning lines.
- 6) Safety nets.

Appropriate fall protection will be determined by the job to be performed.

Fall Protection Locations

Fall protection is required wherever the potential to fall 6 feet or more exists. The following locations have been identified for fall protection:

- 1) All flat and low sloped roof locations when within 6 feet of the roof edge or during roof repair/maintenance (4:12 pitch or less).
- 2) All exterior and interior equipment platforms, catwalks, antennas/towers, etc.
- 4) All open excavations or pits.
- 5) All tasks requiring use of the articulating man lifts and scissor lifts as per manufacturer requirements.
- 6) All tasks requiring employees to lean outside the vertical rails of ladders (i.e., painting, stairwell light bulb replacement, etc.).
- 7) Scaffolding erection -10 feet in height or greater.

Fall Protection Guidelines – Options

When a fall hazard has been identified, there is a three step approach or thought process which must be utilized:

Step 1: Can the hazard be eliminated by using engineering controls.

Step 2: If the hazard cannot be eliminated, can the possibility of a fall be eliminated by creating a fall prevention system.

Step 3: A fall arrest system must be used only when all possibilities of using Step 1 or Step 2 have been exhausted.

Step 1: Engineering Controls

This should always be the first option for selection whenever possible (i.e., light bulb changing, telescoping arm, changing valve, relocate at ground level) or utilizing a contractor with expertise in extremely hazardous areas.

Step 2: Fall Prevention Systems

Guardrails

On all projects, only guardrails made from steel, wood, and wire rope will be acceptable. All guardrail systems will comply with the OSHA regulations (i.e., withstand 200 pounds of force, 42" high, midrail, and toeboard). These guardrails will be placed in the following areas if necessary or feasible based on job location or requirements:

- 1) On all open sided floors.
- 2) Around all open excavations or pits.
- 3) On leading edges of roofs.

Restraint Systems

A restraint system can also be used as a form of fall prevention. The restraint system will incorporate a harness worn by the exposed employee. The harness will be attached to a line or lanyard which will be attached to an anchor of suitable strength (min. 3000lbs.) This system must not allow the employee to fall beyond the edge of the surface that they are working upon.

Step 3: Fall Arrest Systems

Personal Fall Protection System Specifications

All employees on any project that will be required to wear a personal fall arrest or restraint system will follow these guidelines:

- 1) A full body harness will be used at all times.
- 2) All personal fall arrest systems will be inspected before each use by the employee. Any corroded, bent, damaged, impacted and/or harness showing excessive wear will be removed from service.
- 3) Connectors will be inspected to ensure they are drop forged, pressed, or formed steel or are made of equivalent materials and that they have a corrosion resistant finish as well as that all surfaces and edges are smooth to prevent damage to interfacing parts of the system.
- 4) Verify that D rings and snap hooks have a minimum tensile strength of 5,000 lbs.
- 5) Only shock absorbing lanyards or retractable lifelines are to be used which will reduce impact forces to 900lbs. or less on the body.
- 6) Only rope or webbing of an approved material such as nylon or polyester with locking snaphooks is to be used for restraints.
- 7) All lanyards will have self-locking snaphooks.
- 8) Verify that unintentional disengagement of snap hooks is prevented by either of the following means:
 - a) Snap hooks must be compatible to the device or structure that they are connected too.
 - b) Double Acting/Locking type snap hooks are the only type to be used.

Verify that unless the snap hook is a locking type and is designed for the following connections, snap hooks are not engaged in the following manners:

- i) Directly to webbing, rope, or wire rope;
- ii) To each other;
- iii) To a D ring to which another snap hook or other connector is attached; to a horizontal lifeline;
- iv) Or to any object that is incompatibly shaped or dimensioned in relation to the snap hook such that unintentional disengagement could occur by the connected object being able to depress the snap hook keeper and release itself.

Calculating Total Fall Distance

The maximum free fall distance is not to exceed 6 feet. Consideration must be given to the total fall distance. The following factors can affect total fall distance:

- 1) Length of connecting means (i.e., lanyard length, use of carabiners, snaphooks, etc.).
- 2) Position and height of anchorage relative to work platform/area (always keep above head whenever possible).
- 3) Position of attachment and D-ring slide on the full body harness.
- 4) Deployment of shock absorber (max 42").
- 5) Movement in lifeline.
- 6) Initial position of worker before free fall occurs (i.e., sitting, standing, etc.).

It is the total length of shock absorbing lanyard + height of the person + the location distance of the D-ring from the work surface or platform. (See diagram)

Clearance Calculations

Free Fall
Deceleration
Safety Factor

OSHA 1926.501(d)(16)(iii) & (iv)

General Rule:

“You need 12.5 ft of clearance with a 6 ft lanyard ”

- 6.0 ft for Free Fall
 - 3.5 ft for Deceleration
 - 1.0 ft for D -ring slide
 - 2.0 ft for Safety Factor
- 12.5 ft clearance required

Horizontal Lifeline

Horizontal Lifeline systems must be designed and approved by an engineer or qualified person. Horizontal Lifeline systems must be engineered to have appropriate anchorages and line strength. The systems must be designed to hold the number of individuals that will be connected to it, and clearance must be considered within the design of the system to ensure it will be at its most effective. Durability to hold a fallen employee(s) suspended until rescue can occur must also be a consideration within the design of the systems.

Warning Line System

Warning Line systems are only to be used when other Fall protection methods create a greater hazard. If a warning line system is used it must comply with the following:

- 1) The rope, wire, or chain must have a minimum tensile strength of 500 lb and, after being, attached to the stanchions, must be capable of supporting 16 lbs., without breaking.
- 2) The rope, wire, or chain must 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
- 3) The line must 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.
- 4) The warning line must be erected around all sides of the roof work area according to the following requirements:
 - a) When mechanical equipment is not being used, the warning line must be erected not less than 6 ft from the roof edge.
 - b) When mechanical equipment is being used, the warning line must be erected not less than 6 ft from the roof edge that is parallel to the direction of mechanical equipment operation, and not less than 10 ft from the roof edge that is perpendicular to the direction of mechanical equipment operation.
- 5) Only employees performing work within the warning line are allowed within it.
- 6) No employee is allowed in the area between a roof edge and a warning line unless the employee is performing roofing work in that area.

7) Points of access, materials handling areas, storage areas, and hoisting areas must be connected to the work area by an access path formed by two warning lines.

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

Controlled Access Zones

Controlled Access Zones / Safety Monitors systems (CAZ) are only to be used when other fall protection methods create a greater hazard. If a CAZ is used it must comply with the following:

- 1) Control lines must be erected not less than 6 ft nor more than 25 ft from the unprotected or leading edge, except when precast concrete members are erected.
- 2) When pre-cast concrete members are erected, the control line must be erected either not less than 6 ft or more than 60 ft from the leading edge or half the length of the member being erected from the leading edge, whichever is less.
- 3) The control line must extend along the entire length of the unprotected or leading edge and must be approximately parallel to the unprotected or leading edge.
- 4) The control line must be connected on each side to a guardrail system or wall.
- 5) When CAZs are used to control access to areas where overhand bricklaying and related work are taking place, verify that the following requirements are met:
 - 6) The CAZ must be defined by a control line erected not less than 10 ft nor more than 15 ft from the working edge.
 - 7) The control line must extend for a distance sufficient for the CAZ to enclose all employees performing overhand bricklaying and related work at the working edge and must be approximately parallel to the working edge.
 - 8) Additional control lines must be erected at each end to enclose the CAZ.
 - 9) Only employees engaged in overhand bricklaying or related work may be permitted in the CAZ.
 - 10) Control lines must consist of ropes, wires, tapes, or equivalent materials, and supporting stanchions. Each line must be flagged or otherwise clearly marked at not more than 6 ft intervals with high visibility material. Each line must 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 from the walking/working surface.

ALSO: When overhand bricklaying operations are being performed, the line's highest point must not be more than 50 inches from the walking/working surface. Each line must have a minimum breaking strength of 200 lbs.

Verify that on floors and roofs where guardrail systems are not in place prior to the beginning of overhand bricklaying operations, CAZs are enlarged as necessary to enclose all points of access, material handling, areas, and storage areas.

Verify that 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 is removed.

Inspection of Fall Protection Systems

The following criteria will be utilized to maintain all equipment in good working condition. Please note that there are inspection forms for the various equipment listed below in the attached addendum 2.

Full Body Harnesses

1) Inspect before each use.

- Closely examine all of the nylon webbing to ensure there are no burn marks, which could weaken the material.
- Verify there are no torn, frayed, broken fibers, pulled stitches, or frayed edges anywhere on the harness.
- Examine D-ring for excessive wear, pits, deterioration, or cracks.
- Verify that buckles are not deformed, cracked, and will operate correctly.
- Check to see that all grommets (if present) are secure and not deformed from abuse or a fall.
- Harness should never have additional punched holes
- All rivets should be tight, not deformed.
- Check tongue/straps for excessive wear from repeated buckling.

2) Annual inspection of all harnesses will be completed by a competent person; documentation will be maintained on file.

3) Storage will consist of hanging in an enclosed cabinet, to protect from damage.

4) All harnesses that are involved in a fall will be destroyed.

Lanyards/Shock Absorbing Lanyards

1) Inspect before each use.

- Check lanyard material for cuts, burns, abrasions, kinks, knots, broken stitches and excessive wear.
- Inspect the snaphooks for hook, locks, and eye distortion.
- Check carabiner for excessive wear, distortion, and lock operation.
- Ensure that all locking mechanisms seat and lock properly.
- Once locked, locking mechanism should prevent hook from opening.
- Visually inspect shock absorber for any signs of damage, paying close attention to where the shock absorber attaches to the lanyard.
- Verify that points where the lanyard attaches to the snaphooks are free of defects.

2) Annual inspection of all lanyards will be completed by a competent person; documentation will be maintained on file.

3) Storage will consist of hanging in an enclosed cabinet, to protect from damage.

4) All lanyards that are involved in a fall will be destroyed.

Snaphooks / Carabiners

1) Inspect before each use.

- Inspect snaphook for any hook and eye distortions.
- Verify there are no cracks, pitted surfaces, and eye distortions.
- The keeper latch should not be bent, distorted, or obstructed.
- Verify that the keeper latch seats into the nose without binding.
- Verify that the keeper spring securely closes the keeper latch.
- Test the locking mechanism to verify that the keeper latch locks properly.

2) Annual inspection of all snaphooks will be completed by a competent person; documentation will be maintained on file.

3) All snaphooks involved in a fall will be destroyed.

Self-Retracting Lanyards

1) Inspect before each use.

- Visually inspect the body to ensure there is no physical damage to the body.
- Make sure all back nuts or rivets are tight.
- Make sure the entire length of the nylon strap is free of any cuts, burns, abrasions,

- kinks, knots, broken stitches, and excessive wear and retracts freely.
- Test the unit by pulling sharply on the lanyard to verify that the locking mechanism is operating correctly.
 - If manufacturer requires, make certain the retractable lanyard is returned to the manufacturer for scheduled annual inspections.

- 2) Monthly inspection will be conducted by a competent person with documentation maintained on file.
- 3) Service per manufacturer specifications.
- 4) Inspect for proper function after every fall.

Tie-off Adaptors/Anchorages

- 1) Inspect for integrity and attachment to solid surface.
- 2) Annual inspection of all tie-offs and anchorages by a competent person with documentation maintained on file.
- 3) All tie-offs and anchorages will be destroyed and replaced after a fall.

Articulating Man Lift

- 1) Inspect before each use. Inspect/service per manufacturer guidelines.
- 2) Forklift, scissors lifts, and safety nets will be inspected at the beginning of each shift in use. Structural integrity or forklift basket will be checked per same schedule.
- 3) Annual inspection of forklift basket will be completed by competent person with documentation maintained on file.

Horizontal Lifelines

- 1) Inspect before each use for structural integrity of line and anchors.
- 2) Annual inspection by competent person with documentation maintained on file.

Guardrails

- 1) Temporary systems -Daily visual inspection will be completed by a competent person.
- 2) Temporary systems -Weekly, a complete structural inspection will be completed by a competent person.
- 3) Permanent Systems -Annual structural inspection will be completed by a competent person with future frequency of inspection defined based on conditions/controls present.

Storage and Maintenance of Fall Protection Equipment

- 1) Never store the personal fall arrest equipment in the bottom of a tool box, on the ground, or outside exposed to the elements (i.e., sun, rain, snow, etc.).
- 2) Hang equipment in a cool dry location in a way that retains its shape.
- 3) Always follow manufacturer recommendations for inspection.
- 4) Clean according to manufacturer recommendations, typically with a mild, nonabrasive soap, and hang to dry.
- 5) Never dry using heat or sun exposure or use strong detergents in cleaning.
- 6) Never store equipment near excessive heat, chemicals, moisture, or sunlight.
- 7) Never store in an area with exposures to fumes or corrosives elements.
- 8) Avoid dirt and build-up on equipment.
- 9) Never use this equipment for any purpose other than personal fall arrest.
- 10) Once exposed to a fall, remove equipment from service immediately.

Training

Employers must provide a fall prevention training program for each employee who might be exposed to fall hazards. The training program must include recognition of the fall hazards and procedures to follow to minimize these hazards. Training materials must be reviewed to verify that each employee with the possibility of being exposed to these hazards has been trained by a competent person qualified in the following areas:

- a) the nature of fall hazards in the work area;
- b) the correct procedures for erecting, maintaining, disassembling, and inspecting the fall protection systems to be used;
- c) the use and operation of guardrail systems, personal fall arrest systems, safety net systems, warning line systems, safety monitoring systems, CAZS, and other protection to be used;
- d) the role of each employee in the safety monitoring system when this system is used;

- e) the limitations on the use of mechanical equipment during the performance of roofing work on low sloped roofs;
- f) the correct procedures for the handling and storage of equipment and materials and the erection of overhead protection;
- g) the role of employees in fall protection plans;
- h) the requirements contained in 29 CFR 1926 Subpart M.
- i) understanding and following all components of this fall protection program and identifying the enforceable Department of Commerce/OSHA standards and ANSI standards that pertain to fall prevention.

Employers must maintain documentation for employee training. The record must contain the following information:

- a) the name or other identity of the employee trained
- b) the date(s) of the training; and
- c) the signature of the person who conducted the training or the signature of the employer.

Enforcement

Any employee found knowingly violating the guidelines of this program will:

- 1) Subject to discipline as described in the Employee Disciplinary Policy.
- 2) Documentation of any violations will be kept in the staff member's personnel file.
- 3) Any employee not following the fall protection program, or a portion of this procedure will be subject to disciplinary action.

Rescue Procedures

Rescue Methods/Options of Fallen Personnel

In the event that a fall arrest occurs, all employees will be rescued by on-site personnel with the use of an articulating man lift or ladders where feasible. Alternate rescue may be performed by employees trained in rescue procedures. These employees will use the simplest and safest procedure in which they have been trained that is practical for the situation.

OR

**Call -911 or 2222 from any BNL phone
Call -631-344-2222 from any Cell or pay phone
Call BNL Fire Rescue 2222**

Communication Issues

In the event of a fall, the following people will be notified as soon as possible:

- 1) Rescue personnel (i.e., BNL ERT).
- 2) Supervisor / Maintenance supervisor.
- 3) Fire Department or Emergency Medical Services if necessary.
- 4) Safety coordinators.

At the beginning of any work activity where fall protection is an issue, rescue plans must be identified and discussed with all employees in case of a fall. The maintenance supervisor will develop the rescue plan(s).

All employees involved in a fall arrest or fall will be sent for a medical evaluation to determine extent of injuries, if any.

Fall Investigation

All fall investigations will be conducted by Supervisor or Safety Coordinator. The following documentation will be completed as part of the fall investigation:

- 1) Interviews with staff and witnesses.
- 2) Employee injury/accident report.
- 3) Supervisory injury/accident report.

Program Evaluation

This fall protection program will be evaluated periodically to determine effectiveness. The following criteria will be used to evaluate its performance and effectiveness:

- 1) Accident reports, number of accidents.
- 2) Management/staff compliance with program components.
- 3) Periodic on-site audits.
- 4) Staff feedback, interviews.

Contractors

All outside contractors working in or on the premises of will be required to follow the guidelines of this fall protection program. Contractors in the pre-job meeting will be informed of these requirements as well as the on-site construction rules that apply.

Additions can be made to this program as necessary. Some recommended additions would be:

- Regulations specific to systems used
- Training documentation
- Fall Protection Plan for use with Warning Line and Controlled Access Zones
- Inspection Checklists
- Accident Investigation Forms

Components of a Fall Protection Program

Identify

Purpose – Identify the need for this program and what the program is intended to accomplish

Regulations – Identify Local, State, Federal Regulations as well as company policies that require the implementation of a Fall Protection Program.

Hazards – Identify the Hazards that this program is required for
JHA – Job Hazard Analysis
JSA – Job Safety Analysis

Design

Approach – The method with which Identified hazards will be controlled
Prevention / Engineer out the hazard
Fall Restraint
Fall Arrest

Equipment or Systems – Determine what systems, methods, and equipment employees will have available to them to control the Fall hazards that they will be facing. Ensure there is a process for employees to request new equipment when in need of replacement or for a newly identified hazard.

Fall Protection Plan – Site specific document required when using Controlled Access Zone and Warning Line Systems. This must be completed before those systems can be used.

Implementation

Training – How, when and where the equipment is used. How to Inspect, store and maintain equipment.

Inspection – Ensures that equipment is adequate to control hazards that the workers will face. Also, to meet regulatory compliance and manufacturers guidelines.

Storage – Proper storage of the equipment is key to maintaining its effectiveness

Rescue – A means of providing rescue to a fallen worker must be provided for. This must also be incorporated into the training.

Contractors – Contractors must be incorporated into the program to ensure that they are at a minimum following the requirements of the program if not exceeding them.

Maintenance

Fall Investigation – Review of all Accidents, Incidents, and Near Misses to ensure hazards are being adequately controlled and verify program effectiveness.

Program Evaluation – Annual review of the program to evaluate effectiveness and to ensure that it remains up to date with the identification of new hazards or changes in conditions. Evaluations must also be completed in the event of a fall. A fall incident or accident may indicate that the program or a part of it are not adequate for the conditions workers are facing.

Training – Retraining, Refresher Training and Training on new hazards, equipment, and tasks must all be done as the needs are identified.

COMPANY NAME: _____

This training course is designed to make you, our employees, aware of the importance of fall protection. It will encompass the following:

1. The correct ways of using fall protection devices and equipment.
2. Proper inspection of equipment.
3. Identifying fall hazards.
4. What equipment is presently available to you.
5. Knowing your present environment.

TRAINER: _____
Print

TRAINER: _____
Sign

DATE: _____

ATTENDEES: **PRINT NAME** **SIGN NAME**

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____

Full Body Harness

Inspection Checklist / Log

Harness Model: _____ Manufacture Date: _____
 Serial Number: _____ Lot Number: _____ Purchase Date: _____

Comments: _____

General Factors	Accepted / Rejected	Supportive Details or Comments
1.) Hardware: (includes D-rings, buckles, keepers, and back pads) Inspect for damage, distortion, sharp edges, burrs, cracks and corrosion.	<input type="checkbox"/> Accepted <input type="checkbox"/> Rejected	<hr/> <hr/> <hr/> <hr/> <hr/> <hr/>
2.) Webbing: Inspect for cuts, burns, tears, abrasion, frays, excessive soiling, and discoloration.	<input type="checkbox"/> Accepted <input type="checkbox"/> Rejected	<hr/> <hr/> <hr/> <hr/> <hr/> <hr/>
3.) Stitching: Inspect for pulled or cut stitches.	<input type="checkbox"/> Accepted <input type="checkbox"/> Rejected	<hr/> <hr/> <hr/> <hr/> <hr/> <hr/>
4.) Labels: Inspect, make certain all labels are securely held in place and legible.	<input type="checkbox"/> Accepted <input type="checkbox"/> Rejected	<hr/> <hr/> <hr/> <hr/> <hr/> <hr/>
5.)	<input type="checkbox"/> Accepted <input type="checkbox"/> Rejected	<hr/> <hr/> <hr/> <hr/> <hr/> <hr/>
6.)	<input type="checkbox"/> Accepted <input type="checkbox"/> Rejected	<hr/> <hr/> <hr/> <hr/> <hr/> <hr/>
7.)	<input type="checkbox"/> Accepted <input type="checkbox"/> Rejected	<hr/> <hr/> <hr/> <hr/> <hr/> <hr/>

Overall Disposition Accepted Rejected

Inspected By: _____
 Date Inspected: _____

Lanyards

Inspection Checklist / Log

Lanyard Model: _____ Manufacture Date: _____

Serial Number: _____ Lot Number: _____ Purchase Date: _____

Comments: _____

General Factors	Accepted / Rejected	Supportive Details or Comments
1.) Hardware: (includes snap hooks, carabiners, adjusters, keepers, thimbles, and D-rings). Inspect for damage, distortion, sharp edges, burrs, cracks, corrosion and proper operation.	<input type="checkbox"/> Accepted Rejected <input type="checkbox"/>	_____ _____ _____
2.) Webbing: Inspect for cuts, burns, tears, abrasion, frays, excessive soiling, and discoloration.	<input type="checkbox"/> Accepted Rejected <input type="checkbox"/>	_____ _____ _____
3.) Stitching: Inspect for pulled or cut stitches.	<input type="checkbox"/> Accepted Rejected <input type="checkbox"/>	_____ _____ _____
4.) Synthetic Rope: Inspect for pulled or cut yarns, burns, abrasion, knots, excessive soiling and discoloration.	<input type="checkbox"/> Accepted Rejected <input type="checkbox"/>	_____ _____ _____
5.) Wire Rope: Inspect for broken wires, corrosion, kinks, and separation of strands.	<input type="checkbox"/> Accepted Rejected <input type="checkbox"/>	_____ _____ _____
6.) Energy Absorbing Component: Inspect for elongation, tears, and excessive soiling.	<input type="checkbox"/> Accepted Rejected <input type="checkbox"/>	_____ _____ _____
7.) Labels: Make certain all labels are securely held in place and legible.	<input type="checkbox"/> Accepted Rejected <input type="checkbox"/>	_____ _____ _____

Overall Disposition Accepted Rejected

Inspected By: _____

Date Inspected: _____

HOOKS / Carabiners

Inspection Checklist / Log

Tie-Off Adaptor Model: _____ Manufacture Date: _____

Serial Number: _____ Lot Number: _____ Purchase Date: _____

Comments: _____

General Factors	Accepted / Rejected	Supportive Details or Comments
1.) Hardware: (Includes D-rings) Inspect for damage, distortion, sharp edges, burrs, cracks and corrosion.	<input type="checkbox"/> Accepted <input type="checkbox"/> Rejected	
2.) Webbing: Inspect for cuts, burns, tears, abrasion, frays, excessive soiling and discoloration.	<input type="checkbox"/> Accepted <input type="checkbox"/> Rejected	
3.) Stitching: Inspect for pulled or cut stitches.	<input type="checkbox"/> Accepted <input type="checkbox"/> Rejected	
4.) Labels: Inspect, make certain all labels are securely held in place and legible.	<input type="checkbox"/> Accepted <input type="checkbox"/> Rejected	
5.)	<input type="checkbox"/> Accepted <input type="checkbox"/> Rejected	
6.)	<input type="checkbox"/> Accepted <input type="checkbox"/> Rejected	
7.)	<input type="checkbox"/> Accepted <input type="checkbox"/> Rejected	

Overall Disposition Accepted Rejected

Inspected By: _____

Date Inspected: _____

Tie-Off Adaptors

Inspection Checklist / Log

Hook / Carabiner Model: _____ Manufacture Date: _____
 Serial Number: _____ Lot Number: _____ Purchase Date: _____

Comments: _____

General Factors	Accepted / Rejected	Supportive Details or Comments
1.) Physical Damage: Inspect for crack sharp edges, burrs, deformities and locking operation.	<input type="checkbox"/> Accepted <input type="checkbox"/> Rejected	<hr/> <hr/> <hr/> <hr/> <hr/> <hr/>
2.) Excessive Corrosion: Inspect for corrosion which effects the operation and/or strength.	<input type="checkbox"/> Accepted <input type="checkbox"/> Rejected	<hr/> <hr/> <hr/> <hr/> <hr/> <hr/>
3.) Markings: Inspect, make certain marking(s) are legible.	<input type="checkbox"/> Accepted <input type="checkbox"/> Rejected	<hr/> <hr/> <hr/> <hr/> <hr/> <hr/>
4.)	<input type="checkbox"/> Accepted <input type="checkbox"/> Rejected	<hr/> <hr/> <hr/> <hr/> <hr/> <hr/>
5.)	<input type="checkbox"/> Accepted <input type="checkbox"/> Rejected	<hr/> <hr/> <hr/> <hr/> <hr/> <hr/>
6.)	<input type="checkbox"/> Accepted <input type="checkbox"/> Rejected	<hr/> <hr/> <hr/> <hr/> <hr/> <hr/>
7.)	<input type="checkbox"/> Accepted <input type="checkbox"/> Rejected	<hr/> <hr/> <hr/> <hr/> <hr/> <hr/>

Overall Disposition Accepted Rejected Inspected By: _____
 Date Inspected: _____

Anchorage Plates

Inspection Checklist / Log

Anchorage Plate Model: _____ Manufacture Date: _____

Serial Number: _____ Lot Number: _____ Purchase Date: _____

Comments: _____

General Factors	Accepted / Rejected	Supportive Details or Comments
1.) Physical Damage: Inspect for cracks sharp edges, burrs and deformities.	<input type="checkbox"/> Accepted <input type="checkbox"/> Rejected	
2.) Excessive Corrosion: Inspect for corrosion which effects the operation and/or strength.	<input type="checkbox"/> Accepted <input type="checkbox"/> Rejected	
3.) Fasteners: Inspect for corrosion, tightness damage and distortion. If welded, inspect weld for corrosion, cracks and damage.	<input type="checkbox"/> Accepted <input type="checkbox"/> Rejected	
4.) Markings: Inspect, make certain marking(s) are legible.	<input type="checkbox"/> Accepted <input type="checkbox"/> Rejected	
5.)	<input type="checkbox"/> Accepted <input type="checkbox"/> Rejected	
6.)	<input type="checkbox"/> Accepted <input type="checkbox"/> Rejected	
7.)	<input type="checkbox"/> Accepted <input type="checkbox"/> Rejected	

Overall Disposition Accepted Rejected

Inspected By: _____

Date Inspected: _____

Self Retracting Lifelines

Inspection Checklist / Log

Self Retracting Lifeline Model: _____ Manufacture Date: _____
 Serial Number: _____ Lot Number: _____ Purchase Date: _____
 Owner/Dept/Location: _____
 Owner's ID #: _____
 Comments: _____

General Factors	Accepted / Rejected	Supportive Details or Comments
1.) Impact Indicator: Inspect indicator for activation (rupture of red stitching, elongated indicator, etc.)	<input type="checkbox"/> Accepted Rejected <input type="checkbox"/>	
2.) Screws / Fasteners: Inspect for damage and make certain all screws and fasteners are tight.	<input type="checkbox"/> Accepted Rejected <input type="checkbox"/>	
3.) Housing: Inspect for distortion, cracks and other damage. Inspect anchoring loop for distortion and damage.	<input type="checkbox"/> Accepted Rejected <input type="checkbox"/>	
4.) Lifeline: Inspect for cuts, burns, tears, abrasion, frays, excessive soiling and discoloration, broken wires (see impact indicator section).	<input type="checkbox"/> Accepted Rejected <input type="checkbox"/>	
5.) Locking Action: Inspect for proper lock-up of brake mechanism.	<input type="checkbox"/> Accepted Rejected <input type="checkbox"/>	
6.) Retraction/Extension: Inspect spring tension by pulling lifeline out fully and allowing it to retract fully (no slack).	<input type="checkbox"/> Accepted Rejected <input type="checkbox"/>	
7.) Hooks / Carabiners: Inspect for physical damage, corrosion, proper operation and markings (see separate checklist/log for hooks & carabiners).	<input type="checkbox"/> Accepted Rejected <input type="checkbox"/>	
8.) Reserve Lifeline: Inspect reserve lifeline retention systems for deployment.	<input type="checkbox"/> Accepted Rejected <input type="checkbox"/>	
9.) Labels: Inspect, make certain all labels are securely held in place and legible.	<input type="checkbox"/> Accepted Rejected <input type="checkbox"/>	

Overall Disposition Accepted Rejected Inspected By: _____
 Date Inspected: _____

Inspection Checklist / Log

Model: _____ Manufacture Date: _____

Serial Number: _____ Lot Number: _____ Purchase Date: _____

Comments: _____

General Factors	Accepted / Rejected	Supportive Details or Comments
1.)	<input type="checkbox"/> Accepted <input type="checkbox"/> Rejected	
2.)	<input type="checkbox"/> Accepted <input type="checkbox"/> Rejected	
3.)	<input type="checkbox"/> Accepted <input type="checkbox"/> Rejected	
4.)	<input type="checkbox"/> Accepted <input type="checkbox"/> Rejected	
5.)	<input type="checkbox"/> Accepted <input type="checkbox"/> Rejected	
6.)	<input type="checkbox"/> Accepted <input type="checkbox"/> Rejected	
7.)	<input type="checkbox"/> Accepted <input type="checkbox"/> Rejected	

Accepted Inspected By: _____
 Rejected Date Inspected: _____

Overall Disposition

APPENDIX N
SCAFFOLD
PROGRAM

Daily Scaffolding Safety Checklist

Company: _____

Inspection Date: _____

Project: _____

Performed By: _____

Name (print): _____

Sign: _____

DESCRIPTION	STATUS	CORRECTIVE ACTION
Design to withstand four times maximum intended load		
Scaffold access by ladder		
Guard Rails for scaffolding above 6 feet: a) Top Rail – 42 inches b) Mid Rail – 21 inches c) Toe Board – 4 inches		
Standard Guard Rails: a) Wood Rail – 2 X 4 construction grade. Post not to exceed 8 feet on center. b) Pipe Rail – 1.5-inch diameter steel pipe. Post not to exceed 8 feet on center. c) Metal Rail – 2 X □-inch angle iron. Post not to exceed 8 feet on center.		
Guard Rail Strength: All material used capable of withstanding a minimum loading of 200 pounds in any direction.		
Footing: Sound, rigid and capable of carrying maximum intended load without settlement or dislodging.		
Poles, Legs, Uprights: Plumb and securely and rigidly braced to prevent displacement.		
Planking: Scaffold grade not less than 2-inch nominal thickness.		
Lapped Planking: Each member overlapped a minimum of 12 inches. Extended over their bearers not less than 6 inches or more than 12 inches.		
Width: Not less than 18 inches wide.		
Overhead Protection: When employees working on scaffold are exposed to falling objects.		
Scaffold Enclosures: Scaffold enclosed on all open sides and ends where persons work under scaffolding or where scaffold is above an access way.		
Securing: Scaffold secured and braced to structure: a) every 30 ft. horizontally b) every 26 ft. vertically		

APPENDIX O
DIGGING
PERMIT

EWHOWELL

GENERAL CONTRACTORS / CONSTRUCTION MANAGERS

BNL NSLS-11 LOB

**245 Newtown Road, Suite 600
Plainview, NY 11803**

DIGGING PERMIT

A: GENERAL INFORMATION

1. Name of Project Manager:	2. Project Manager's Telephone #:	3. Today's Date:
4. Name of Project:	5. Project #/ Work Order #:	6. Maximum Proposed Depth of Excavation:
7. Scheduled Excavation Start Date:	8. How has the perimeter of the proposed excavation site been identified in the field? <input type="checkbox"/> by markers <input type="checkbox"/> by white paint <input type="checkbox"/> other (explain):	
9. Description of work to be done:		10. List affected facilities at proposed excavation site
11. Location (attach drawings obtained from Infrastructure Mgmt indicating proposed excavation and the locations of all known utilities):		

Long Term Response Actions (LTRA) Non-Potable Water in area Yes <input type="checkbox"/> No <input type="checkbox"/> (if Yes, requires mark out and sign off in Block E)	(if checked "Yes", complete section 'C') CONTAMINATION/RADIATION/CHEMICAL Yes <input type="checkbox"/> No <input type="checkbox"/> 24.0 UNEXPLODED ORDINANCE/BURIED MUNITIONS YES <input type="checkbox"/> NO <input type="checkbox"/>
--	--

Comments:	SIGNATURE:	LIFE:	DATE:
Environmental & Waste Mgt Services Division (EWMSD)	ENDANGERED SPECIES HABITAT <input type="checkbox"/>	Date:	
SIGNATURE:	TYPE:	LIFE #:	

C:

	ACTION TAKEN: Work Permit <input type="checkbox"/> Hand Dig Only <input type="checkbox"/> Postings <input type="checkbox"/> Other <input type="checkbox"/>	SIGNATURE:	LIFE #:	Date:
For former CERCLA sites:	Site Specific LUIC's:	SIGNATURE:	LIFE #:	Date:

D: LIMITED UTILITY MARKING: required for all machine digging in developed areas and for all excavations greater than 6 inches in depth in developed areas. ON-SITE OFF-SITE
 For Off-site call 1-800-272-4480 FOR MARK OUT. CONFIRMATION # _____ and Mark Out completion Date _____
 For Off-site with Confirmation and Mark Out, No other Utility Signatures Required

UTILITY- (PHONE/PAGER or CELL PHONE)	MARKING METHOD/COMMENTS:	SIGNATURE:	LIFE #:	Date:
Electric	(red)			
Fire Alarm	(orange)			
Tele/Fiber Optic	(orange)			
CATV/Satellite TV	(orange)			
FACILITY SPECIFIC: (e.g. earth shielded accelerator beam lines, D-waste, Off-gas, non-contact cooling water, etc) See Work Control Manager Web Page List: WORK CONTROL MANAGER WEB PAGE LIST				

EP SURVEYOR **the Surveyor signoff is not required at this time**
E: ADDITIONAL UTILITY MARKINGS: required (In addition to Section D) for machine digging 18 inches or greater in depth in developed areas, machine digging 3 feet or greater in depth in all areas, and all digging 5 feet or greater in depth in any area.

UTILITY- (PHONE/PAGER or CELL PHONE)	MARKING METHOD/COMMENTS:	SIGNATURE:	LIFE #:	Date:
Chilled Water	(purple)			
Compressed Air	(yellow)			
Propane	(yellow)			
Sewer	(green)			
Steam/Condensate	(yellow)			
Storm Drains	(green)			
Potable Water	(blue)			
Non-potable Water	(purple)			
Natural Gas	(yellow)			
	Marking Expiration Date			

BROOKHAVEN NATIONAL LABORATORY

DIGGING PERMIT (CONT.) NUMBER _____

F. TONING INFORMATION (answer all questions in this section):

List Toning Equipment Used to Locate Utility _____

Instrument Tool Crib # _____

1. Peak and Null Agree: Yes <input type="checkbox"/> No <input type="checkbox"/>	2. Consistent Signal Strength: Yes <input type="checkbox"/> No <input type="checkbox"/>	3. Depths are Consistent and Logical: Yes <input type="checkbox"/> No <input type="checkbox"/>
4. Has Utility been traced to a termination Point? Yes <input type="checkbox"/> No <input type="checkbox"/>	5. Conductive hook-up Used: Yes <input type="checkbox"/> No <input type="checkbox"/>	6. Inductive Hook-up Used: Yes <input type="checkbox"/> No <input type="checkbox"/>

7. Comments:

8. Date/time of toning:	9. Has another locating device been used? Yes <input type="checkbox"/> No <input type="checkbox"/> Type/Model: _____	10. Completed Checklist Attached: Yes <input type="checkbox"/> No <input type="checkbox"/>
11. Name:	12. Signature:	13. Life #: _____ 14. Date: _____

G: Project Manager's final approval:

This permit has been properly prepared and distributed, and utilities have been clearly marked:

Project Manager Approved Signature and Date: _____

H. Utility Marking Evaluation:

Prior to the start of excavation activities, Utility Markings shall be inspected and maintained according to this schedule:

- Every 10 days for natural gas lines.
- Every 30 days for all other utilities.

Enter the date of the last evaluation and the date of the next scheduled evaluation:

Natural Gas Evaluation date(s): _____

Other Markings Evaluation date(s): _____

Note: Once excavation activities start it is the responsibility of the Contractor and/or Plant Engineering Personnel who are doing the work to inspect and maintain utility markings.

I: Excavation Personnel Acknowledgement (Contractor or Plant Engineering Personnel Performing the Work):

I have received a briefing on the scope of work to be performed. I have reviewed the Digging Permit, marked-up utility drawing and understand the responsibility to inspect and maintain utility markings during this project.

Date: _____ Signature: _____

J: PRELIMINARY INSPECTION, TO BE COMPLETED BY COMPETENT PERSON: required for all excavations with "worker exposure."

1. Name of Competent Person:	2. Company/Dept.:	3. Telephone #:	4. Preliminary Inspection? YES <input type="checkbox"/> No <input type="checkbox"/> If no, explain:
------------------------------	-------------------	-----------------	---

5. Preliminary Soil Analysis Class C soil? YES <input type="checkbox"/> NO <input type="checkbox"/> If no, provide analysis and Documentation explaining why it is a different soil Type.	6. Special Instructions- (use of shoring, trench box, etc):	7. Signature:	8. Date:
9. Describe any changes in protective system:		10. Date of Change:	11. Initial:
12. Additional Comments:			

**APPENDIX P
EXCAVATION
CHECKLIST**

Daily Excavation Safety Checklist

Company: _____

Inspection Date: _____

Project: _____

Performed By: _____

Name: (print) _____

Sign: _____

DESCRIPTION	STATUS	CORRECTIVE ACTION
Notification of utility company requesting markout		
Excavations guarded for public safety		
Excavations inspected following rain fall		
Underpinning or equivalent safety measures in place to ensure stability of adjacent walls		
Ladder or ramp available at excavation greater than 4 feet deep		
Ladder or ramp in place every 25 feet of lateral travel		
Ground water controlled inside excavation		
Excavated material stored at least 2 feet from the edge of excavation		
Back up alarms in working order on all heavy equipment		
Reflective safety vest worn by workers when working in or around traffic		
Excavations over 5 feet deep supported by- a) Timber Shoring b) Sloping or Benching c) Trench Box d) Hydraulic Shoring		
Excavations greater than 20 feet designed by professional engineer		
Excavations deviating from the above noted methods designed by a professional engineer licensed in the state of the construction project		
Slope Back Requirements Type A Soil ¾ to 1 Type B Soil 1 to 1 Type C Soil 1 ½ to 1		
Trench Box Requirements a) PE marking on box		
Timber Sheeting conforms with OSHA 1926.652 requirements		
Excavations tested for hazardous atmospheres		
Loose rock or soil at excavation face sealed back		
Emergency rescue equipment available where hazardous atmospheric conditions exist or may develop during work in the excavation a) Breathing Apparatus b) Safety Harness and Rescue Equipment c) Stretcher or Basket		

Excavations and Trenching
(Reference 29 CFR 1926 Subpart P)

General Information

- Cave-ins can be fatal.
- Prior to excavating, efforts should be made to determine the existence and/or location of underground installation (e.g. sewer, telephone, water, fuel, electric lines, etc.). Ensure Dig Safely NY has been notified prior to digging, drilling, or blasting activities.
- Walls and faces of excavations, which expose workers to danger from moving ground, shall be guarded by a shoring system, sloping of the ground, or other equivalent means as required by OSHA standards.
- A competent person is required to inspect excavations daily and after rainstorms or other hazard-increasing occurrence, with additional protection taken against slides or cave-ins as necessary.
- Shoring, cribbing, sheet piling, bracing, and underpinning shall meet OSHA standards and shall be installed and inspected by a competent person.
- A Registered Professional Engineer (P.E.) shall design any shoring, sloping, or benching system that is greater than 20 feet in depth. This includes soldier piles, lagging systems, or sheet pile systems.
- A stairway, ladder, ramp, or other safe means of egress shall be located in trench excavations that are four (4) feet or more in depth, so as to require no more than 25 feet of lateral travel. Access points into the excavation shall be properly protected with guardrails as applicable.
- Excavations 5 feet or more in depth must never be entered unless it has been adequately sloped, shored, stepped back, or otherwise protected.
- Spoil piles and/or materials shall be kept a minimum of 2 feet from the edge of the excavation, more as necessary.
- If exposed to vehicular/equipment traffic, a warning vest is required to be worn.
- Consideration shall be given to potentially hazardous atmospheres when excavation occurs near active manholes, landfills, etc.
- Fall protection is required when employees crossover excavations 6 feet or more in depth. Guardrails, which comply with 1926.502(b), shall be provided on walkways.
- Demarcate/barricade excavations as necessary to warn of the impending hazard. Backfill as soon as practical.

Technical Information

A contractor's "competent person" must be designated (prior to excavation activities) to inspect the excavation(s) on a daily basis, at the start of the work shift, after every rainstorm, or after any other hazard-increasing occurrence. A "competent person" is one who is capable of identifying for employees existing and predictable hazards in the surroundings or working conditions, which are unsanitary or dangerous. He/she has the authorization to take prompt corrective measures to eliminate them.

Classifications:

Soils are categorized as Stable Rock, Type A, Type B and Type C, in decreasing order of stability.

- Stable Rock: Natural solid mineral matter that can be excavated with vertical sides and remain intact while exposed.

- **Type A:** Cohesive soils with an unconfined compressive strength of 1.5 ton per square foot (tsf) (144 KPa) or greater. Examples of cohesive soils are clay, silty clay, sandy clay, clay loam in some cases, silty clay loam and sandy clay loam, and cemented soils such as caliche and hardpan. No soil is "Type A" if:
 - It is fissured
 - It is subject to vibration from heavy traffic, pile driving, or similar effects
 - It has been previously disturbed

- **Type B:** Cohesive soils with an unconfined compressive strength greater than 0.5 tsf (85 KPa) but less than 1.5 tsf (144 KPa). Examples are granular cohesionless soils such as angular gravel (similar to crushed rock), silt, silty loam, sandy loam, and in some cases, silty clay loam and sandy clay loam. Also, previously disturbed soils, except those which would otherwise be classified as Type C soil and dry rock that is not stable, are examples of Type B.

- **Type C:** Cohesive soil with an unconfirmed compressive strength of 0.5 tsf (48 KPa) or less. Examples are granular soils including gravel, sand and loamy sand, submerged soil or soil from which water is freely seeping, and submerged rock that is not stable.

Note: Requirement - each soil and rock deposit shall be classified by a competent person as (1) Stable Rock, (2) Type A, (3) Type B and (4) Type C, as defined above. The classification is based on one visual and one manual test.

Manual Tests: Manual analysis of soil samples is conducted to determine quantitative as well as qualitative properties of soil and to provide more information in order to classify soil properly. The following two manual tests may be used.

- **Plasticity:** Mold a moist or wet sample of soil into a ball and attempt to roll it into threads as thin as 1/8 inch in diameter. Cohesive material can be successfully rolled into threads without crumbling. For example, if at least a two-inch (50 mm) length of 1/8 inch thread can be held on one end without tearing, the soil is cohesive.

- **Thumb Penetration:** The thumb penetration test can be used to estimate the unconfirmed compressive strength of cohesive soils. (This test is based on the thumb penetration test described in American Society for Testing and Materials (ASTM) Standard designation D2488 - "Standard Recommended Practice for Description of Soils (Visual - Manual Procedure).") The thumb can readily indent type A soils with an unconfined compressive strength of 1.5 tsf; however, it is penetrated by the thumb only with great effort. Type C soils with an unconfined compressive strength of 0.5 tsf can be easily penetrated several inches by the thumb and can be molded by light finger pressure. This test should be conducted on an undisturbed soil sample, such as a large clump of soil, as soon as practicable after excavation to keep to a minimum the effects of exposure to drying influences. If the excavation is later exposed to wetting influences (rain, flooding), the classification of the soil must be changed accordingly.

Trench Box:

When a trench box or shield is utilized in excavation work, whether manufactured or designed by a registered professional engineer, a copy of the specifications, recommendation, and limitations (Tabulated Data) should be available in written form at the job site during construction of the protective system. After that time, the data may be stored off the job site, but a copy made available upon request

as needed. See diagrams for specifications when using trench boxes or shielding in conjunction with sloping and benching of excavations.

Sloping and Benching: The following table and examples depict the specifications for sloping and benching when used as methods of protecting employees working in excavations from cave-ins.

MAXIMUM ALLOWABLE SLOPES

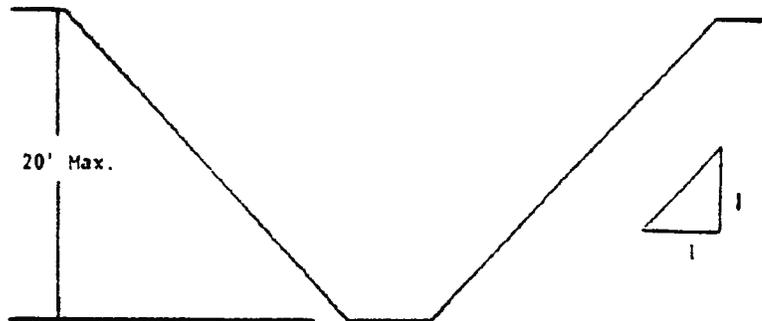
<u>SOIL OR ROCK TYPE</u>	<u>MAXIMUM ALLOWABLE SLOPES (H:V) [1] FOR EXCAVATIONS LESS THAN 20 FEET DEEP [3]</u>	
	Stable Rock	Vertical
Type A [2]	¾:1	(53 degrees)
Type B	1:1	(45 degrees)
Type C	1 ½: 1	(34 degrees)

Notes:

- Numbers shown in parentheses next to maximum allowable slopes are angles expressed in degrees from the horizontal. Angles have been rounded off.
- A short-term maximum allowable slope of ½ H: 1V (63 degrees) is allowed in excavations in Type A soil that are 12 feet (3.67 m) in depth. Short-term maximum allowable slopes for excavations greater than 12 feet (3.67 m) in depth shall be ¾ H: 1V (53 degrees). “Short-term” is defined as 24 hours or less.
- Sloping or benching for excavations greater than 20 feet deep shall be designed by a registered professional engineer.

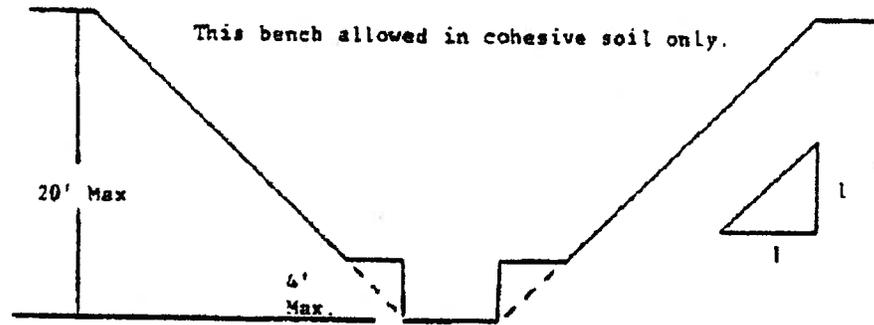
Excavations Made in Type B Soil

All simple slope excavations 20 feet or less in depth shall have a maximum allowable slope of 1:1.

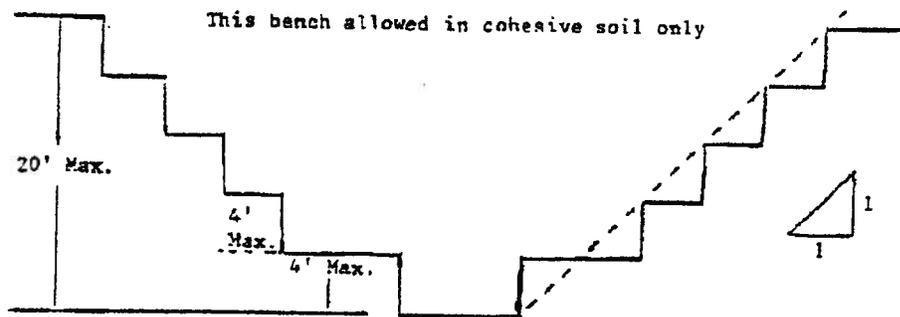


SIMPLE SLOPE

Benched excavations 20 feet or less in depth shall have a maximum allowable slope of 1:1 and maximum bench dimensions as follows:

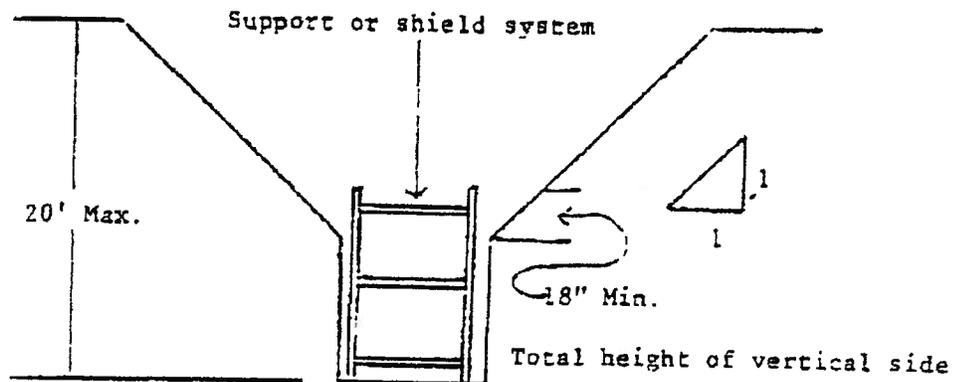


SINGLE BENCH



MULTIPLE BENCHES

Excavations 20 feet or less in depth which have vertically sided lower portions shall be shielded or supported to a height at least 18 inches above the top of the vertical side. All such excavations shall have a maximum allowable slope of 1:1.

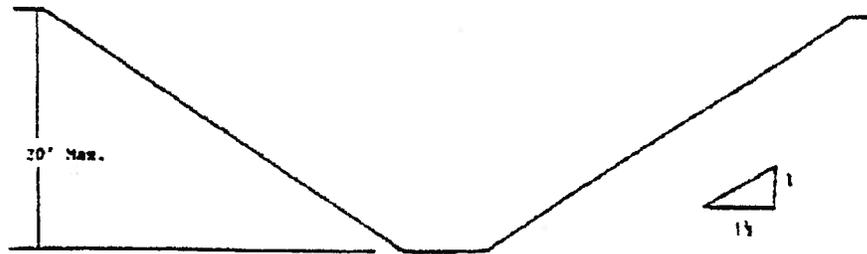


VERTICALLY SIDED LOWER PORTION

All other sloped excavations shall be in accordance with the other options permitted in §1926.652(b).

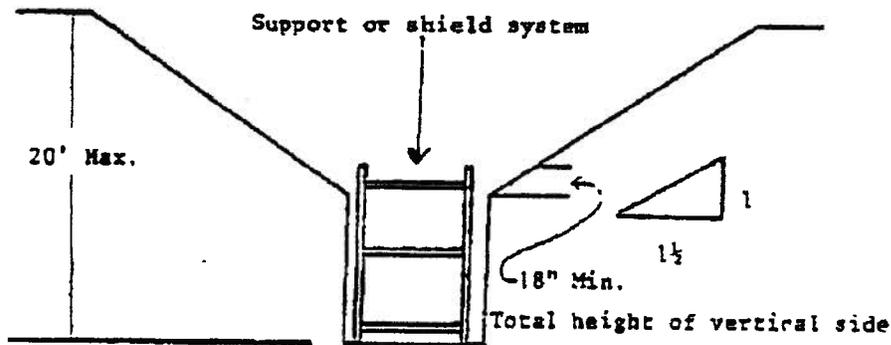
Excavations Made in Type C Soil

Simple slope excavations 20 feet or less in depth shall have a maximum allowable slope of 1 ½:1.



SIMPLE SLOPE

Excavations 20 feet or less in depth which have vertically sided lower portions shall be shielded or supported to a height at least 18 inches above the top of the vertical side. All such excavations shall have a maximum allowable slope of 1 ½:1.

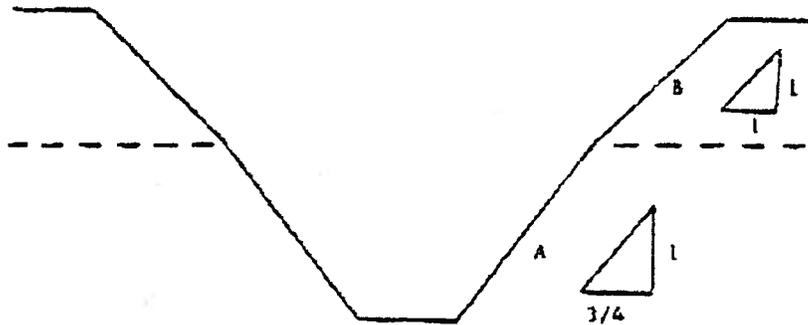


VERTICAL SIDED LOWER PORTION

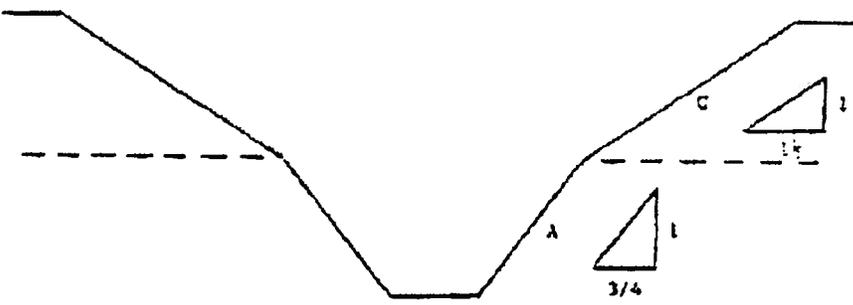
All other sloped excavations shall be in accordance with the other options permitted in §1926.652(b).

Excavations Made in Layered Soils

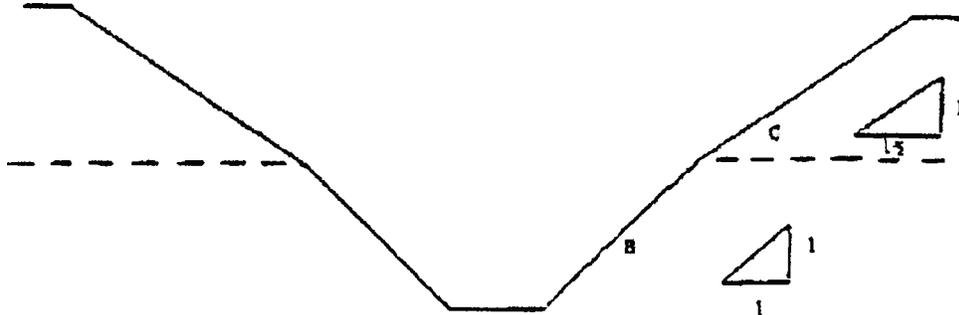
Excavations 20 feet or less in depth made in layered soils shall have a maximum allowable slope for each layer as set forth below.



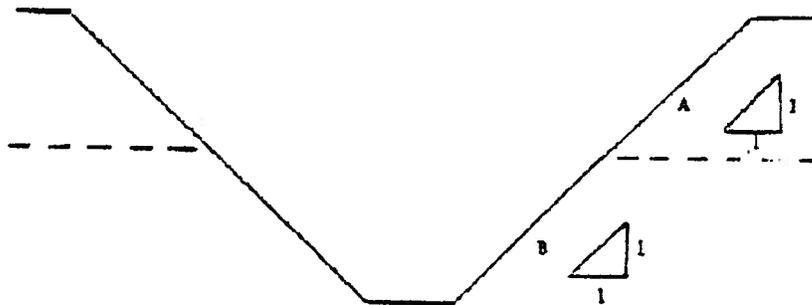
B OVER A



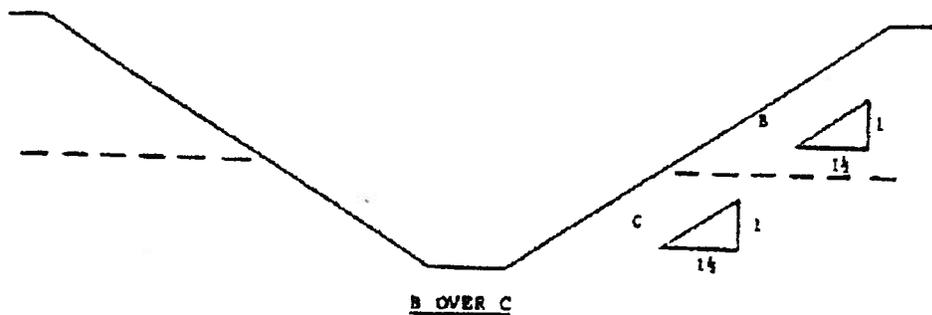
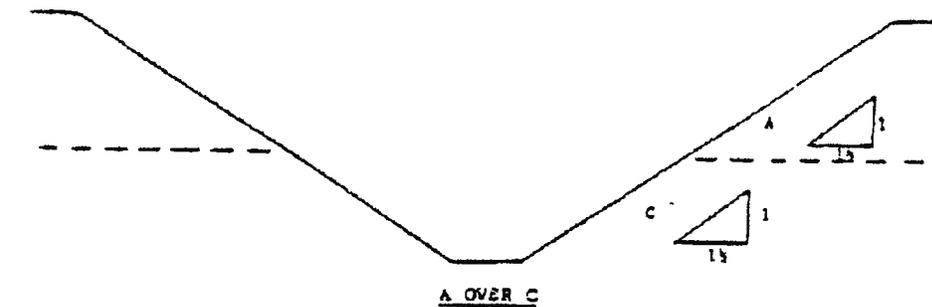
C OVER A



C OVER B



A OVER B



All other sloped excavations shall be in accordance with the other options permitted in §1926.652(b).

General Requirements for Concrete Construction

(Reference 29 CFR 1926 Subpart Q)

- No construction loads should be placed on a concrete structure or portion of a concrete structure unless the employer determines, based on information received from a person who is qualified in structural design, that the structure or portion of the structure is capable of supporting the loads.
- Reinforcing steel (rebar), onto or into which employees could fall, shall be guarded to eliminate the hazard of impalement. Mushroom-style caps should not be used.
- Riding of concrete buckets is not permitted.
- Contractor employees should be permitted to work under concrete buckets while buckets are being elevated or lowered into position. Coordination of work activity is a must.
- Shoring equipment (including equipment used in re-shoring operations) should be inspected prior to erection to determine that the equipment meets the requirements specified in the formwork drawings and the manufacturer's recommendations.
- Erected shoring equipment should be inspected immediately prior to, during, and immediately after concrete placement.
- Re-shoring should not be removed until the concrete being supported has attained adequate strength to support its weight and all loads in place upon it.
- Form scaffold shall follow the appropriate requirements as found in Subpart L, CFR 1926.450.
- Shore and re-shore posts are potential pinch hazards to hands and fingers.
- Unused shoring materials should be stored in such a manner so that they are not a trip hazard and/or can easily fall onto adjacent workers!

**APPENDIX Q
COMPETENT
PERSON
LIST**

DESIGNATION OF COMPETENT PERSON(S)

 (Project/Site Identification)

 (Date)

Each individual listed below, by virtue of training and/or experience, is designated a "Competent Person" as that designation relates to the area of expertise noted.

A Competent Person is one who is capable of identifying existing and predictable hazards in the surrounding or working conditions which are unsanitary, hazardous or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.

Printed Name:	Company Name:	SSN/Last 4	Signature:	Area of Expertise:

 Safety Director (print)

 (sign)

 Company

APPENDIX R
HOT
WORK
PERMIT

HOT WORK PERMIT

All temporary operations involving open flames or producing heat and/or sparks require a Hot Work Permit. This includes, but is not limited to, Brazing, Cutting, Grinding, Soldering, Thawing, and Welding.

INSTRUCTIONS FOR FIRE SAFETY SUPERVISOR

1. Verify precautions listed at right (or do not proceed with the work).
2. Complete PLY 1 and retain for job files.
3. Post PLY 2 in vicinity of hot work.

DATE _____ JOB NO. _____

LOCATION/BUILDING & FLOOR (Be Specific) _____

DESCRIPTION OF WORK BEING PERFORMED _____

NAME OF PERSON DOING HOT WORK _____

The above location has been examined, the precautions checked on the Hot Work Checklist have been taken to prevent fire, and permission is authorized for this work.

SIGNED: _____
(Fire Safety Supervisor)

SIGNED: _____
(Person doing Hot Work)

SIGNED: _____
(Fire Watch)

TIME
STARTED: Date: _____ Time: _____ AM/PM

PERMIT
EXPIRES: Date: _____ Time: _____ AM/PM

PART A

HOT WORK CHECKLIST

- Sprinklers and hose streams in service/operable.
- Hot Work Equipment in good condition (e.g., power source, welding leads, torches, etc.)
- Multi-purpose fire extinguisher and/or water pump can.

REQUIREMENTS WITHIN 35 FEET OF WORK

- Dust, Lint, Debris, Flammable Liquids and oily deposits removed.
- Explosive atmosphere in area eliminated.
- Combustible floors (e.g., wood, tile, carpeting) wet down, covered with damp sand or fire blankets.
- Remove flammable and combustible material where possible. Otherwise protect with fire blankets, guards, or metal shields.
- All wall and floor openings covered.
- Walkways protected beneath hot work.

WORK ON WALLS OR CEILINGS

- Combustibles moved away from other side of wall.

WORK IN CONFINED SPACES

- Confined space cleaned of all combustibles (example: grease, oil, flammable vapors).
- Containers purged of flammable liquids/vapors.
- Follow confined space guidelines.

FIRE WATCH/HOT WORK AREA MONITORING

- Fire watch will be provided during and for 30 minutes after work, including any coffee or lunch breaks.
- Fire watch is supplied with an extinguisher, and/or water pump can, also making use of other extinguishers located throughout work area.
- Fire watch is trained in use of this equipment and familiar with location of sounding alarm.
- Fire watch may be required for opposite side of walls, above, and below floors and ceilings.

OTHER PRECAUTIONS TAKEN

FILL OUT EMERGENCY INFORMATION ON PAGE 2.

HOT WORK PERMIT

All temporary operations involving open flames or producing heat and/or sparks require a Hot Work Permit. This includes, but is not limited to, Brazing, Cutting, Grinding, Soldering, Thawing, and Welding.

PART B

INSTRUCTIONS FOR FIRE SAFETY SUPERVISOR

1. Verify precautions listed at right (or do not proceed with the work).
2. Complete page 1 and retain for job files.
3. Post page 2 in vicinity of hot work.

DATE

JOB NO.

LOCATION/BUILDING & FLOOR (Be Specific)

DESCRIPTION OF WORK BEING PERFORMED

NAME OF PERSON DOING HOT WORK

The above location has been examined, the precautions checked on the Hot Work Checklist have been taken to prevent fire, and permission is authorized for this work.

SIGNED:

(Fire Safety Supervisor)

SIGNED:

(Person doing Hot Work)

SIGNED:

(Fire Watch)

TIME

STARTED: Date: _____ Time: _____ AM/PM

Date: _____ Time: _____ AM/PM

FIRE WATCH SIGNOFF

Work area and all adjacent areas to which sparks and heat might have spread were inspected during the fire watch period and were found fire safe.

Signed: _____

FINAL CHECKUP (minimum 30 minutes after Hot Work)

Work area was monitored for _____ hour(s) following Hot Work and found fire safe.

Signed: _____

FILL OUT EMERGENCY INFORMATION ON BACK OF PLY 2.

HOT WORK CHECKLIST

- Sprinklers and hose streams in service/operable.
- Hot Work Equipment in good condition (e.g., power source, welding leads, torches, etc.)
- Multi-purpose fire extinguisher and/or water pump can.

REQUIREMENTS WITHIN 35 FEET OF WORK

- Dust, Lint, Debris, Flammable Liquids and oily deposits removed.
- Explosive atmosphere in area eliminated.
- Combustible floors (e.g., wood, tile, carpeting) wet down, covered with damp sand or fire blankets.
- Remove flammable and combustible material where possible. Otherwise protect with fire blankets, guards, or metal shields.
- All wall and floor openings covered.
- Walkways protected beneath hot work.

WORK ON WALLS OR CEILINGS

- Combustibles moved away from other side of wall.

WORK IN CONFINED SPACES

- Confined space cleaned of all combustibles (example: grease, oil, flammable vapors).
- Containers purged of flammable liquids/vapors.
- Follow confined space guidelines.

FIRE WATCH/HOT WORK AREA MONITORING

- Fire watch will be provided during and for 30 minutes after work, including any coffee or lunch breaks.
- Fire watch is supplied with an extinguisher, and/or water pump can, also making use of other extinguishers located throughout work area.
- Fire watch is trained in use of this equipment and familiar with location of sounding alarm.
- Fire watch may be required for opposite side of walls, above, and below floors and ceilings.

OTHER PRECAUTIONS TAKEN

WARNING!

**HOT WORK IN PROGRESS
WATCH FOR FIRE!**

IN CASE OF AN EMERGENCY:

CALL: _____

AT:

WARNING!