



Site Safety Manual

Contents

1.0	SBA'S POLICY AND COMMITMENT TO SAFETY	4
2.0	APPLICATION OF SITE SAFETY MANUAL / DEFINITIONS.....	4
2.1	Definitions.....	4
3.0	TRAINING AND COMMUNICATION	5
4.0	WORKSITE ANALYSIS AND INSPECTION.....	5
4.1	Pre-Work Assessment/Job Safety Analysis (JSA).....	5
4.2	Equipment Safety Inspection.....	6
4.3	Health and Safety Audits	6
4.4	Incident Reporting.....	6
4.4.1	Reporting of Work-Related Injuries/Illnesses and Near Misses.....	6
4.4.2	Motor Vehicle Incident – SBA Team Member Only	7
4.4.3	Work-Related Injury – SBA Team Member Only	7
4.4.4	Property Damage or Theft – SBA Team Member Only.....	7
4.4.5	Contractor Incident.....	7
5.0	EMERGENCY RESPONSE	7
5.1	Emergency Communications	7
5.2	Emergency Preparedness	8
5.2.1	Medical Emergency	8
5.2.2	Fire	8
5.2.3	Other Severe Weather Conditions:	8
6.0	TOWER SITE SECURITY	9
6.1	Security during Tower Construction.....	9
6.2	Security for Existing Towers	9
6.3	Security for Controlled Access Areas	9
7.0	PERSONAL PROTECTIVE EQUIPMENT (PPE)	9
7.1	Head Protection.....	10
7.2	Eye Protection	10
7.3	Hand Protection.....	10
7.4	Foot Protection	10
7.5	Hearing Protection	10
7.6	Respiratory Protection.....	10
8.0	FOCUS FIVE TOPIC 1 – FALL PROTECTION.....	11
8.1	General Requirements	11
8.1.1	Job Planning	11
8.1.2	Fall Protection Systems Evaluation	11
8.1.3	Inspection	11
8.1.4	Training/Qualifications.....	12
8.1.5	Personal Fall Arrest Systems (PFAS)	12
8.1.6	Anchorage Points.....	12
8.1.7	Full-Body Harness.....	12
8.1.8	Connecting Devices	12
8.2	Elevated Tower Work	13
8.2.1	Erection of Monopoles.....	13
8.2.2	Guyed Tower and Self-Supporting Tower	14
8.2.3	Antenna Supporting Mounts.....	14
8.3	Rooftop Work	14

8.4	Controlled Descent/Vertical Lifeline.....	14
8.5	Rescue for Elevated Work.....	15
8.6	Personnel Hoisting.....	16
	8.6.1 Personnel Platform/Man-basket.....	16
	8.6.2 Aerial Lifts.....	18
8.7	Ladders.....	19
8.8	Scaffolds.....	19
9.0	FOCUS FIVE TOPIC 2 – ELECTRICAL SAFETY/LOCKOUT TAGOUT	19
9.1	Electrical Hazards	20
9.2	Safe Electrical Work Practices	20
9.3	Electrical PPE	20
9.4	Lockout/Tagout Procedure.....	21
10.0	FOCUS FIVE TOPIC 3 – MANUAL MATERIAL HANDLING AND LIFTING	21
11.0	FOCUS FIVE TOPIC 4 – CRANES, HOISTS AND RIGGING SAFETY	21
11.1	Cranes, Hoists, Boom Trucks.....	22
11.2	Capstans.....	22
11.3	Gin Poles	23
11.4	Rigging.....	23
11.5	Synthetic Ropes	23
12.0	FOCUS FIVE TOPIC 5 – ELECTROMAGNETIC ENERGY SAFETY	24
12.1	Four Criteria for Entering a Controlled RF Environment.....	24
12.2	General Work Practices	25
12.3	Electromagnetic Energy Site Signage.....	25
12.4	Personal Protective Equipment (for EME/RF)	26
13.0	EXCAVATIONS AND TRENCHES.....	26
13.1	General Requirements	26
13.2	Soil Classifications For Excavations Exceeding 1.5 meters/5 Feet.....	26
13.3	Protective Systems for Excavations Exceeding 1.5 meters/5 Feet.....	27
13.4	Inspections of Excavations Exceeding 1.5 meters/5 Feet.....	27
13.5	Employee Information and Training.....	27
14.0	HAND AND POWER TOOL SAFETY	27
14.1	Power Tools	27
14.2	Hand Tools.....	28
15.0	FORKLIFTS.....	28
16.0	HOT WORK (CUTTING/WELDING/GRINDING)	28
16.1	Guidelines for Welding, Cutting, and Spark Producing Work.....	28
	16.1.1 Hot Work Activities.....	29
	16.1.2 Compressed Gas Cylinders Safety Precautions.....	29
17.0	HOUSEKEEPING	29
17.1	Fire Prevention/Protection	30
18.0	HAZARD COMMUNICATION.....	30
19.0	CONCRETE WORK.....	32
20.0	CONFINED SPACE ENTRY	33
21.0	TEMPERATURE EXTREMES.....	34
21.1	Heat Stress Symptoms and Treatment.....	34
21.2	Heat Stress Prevention.....	34
	21.2.1 Fluid Replenishment.....	35

21.2.2	Breaks.....	35
21.2.3	Miscellaneous Preventive Techniques.....	35
21.3	Heat Stress Monitoring.....	35
21.4	Cold Stress Symptoms and Treatment.....	35
21.5	Cold Stress Prevention.....	36
21.5.1	Below 40° F (4° C).....	36
21.5.2	ECT Below 20° F (-7° C)	36
21.5.3	ECT Below 10° F (-12° C)	36
21.5.4	ECT Below -30° F (-35° C).....	36
21.5.5	ECT Below -50° F (-45° C).....	36
21.6	Employee Education and Training.....	36

1.0 SBA'S POLICY AND COMMITMENT TO SAFETY

As a leader in the wireless industry, it is the ultimate goal of SBA to provide a healthy and safe work environment for the protection of our most vital resources – our employees, contractors and assets. SBA's core belief is that all injuries and incidents are preventable. Accordingly, each SBA employee and contractor equally shares the responsibility and accountability for safety.

The fundamental premise of SBA's health and safety philosophy is that no task is so important that it should be performed in an unsafe manner. SBA's commitment to its employees and contractors allows for Stop Work Authority without fear of disciplinary action.

2.0 APPLICATION OF SITE SAFETY MANUAL / DEFINITIONS

The Site Safety Manual shall be used in conjunction with all applicable Federal Regulations and is intended to be used as a field reference. The Site Safety Manual provides SBA's expectations and minimum requirements for health and safety performance for all workers on SBA owned or managed property. It should be understood that additional requirements may apply depending upon the scope of work and task performed.

SBA's Site Safety Manual includes five focus topics closely associated with our most common and severe risks. The topics include:

- Fall Protection
- Electrical Safety (Lockout/Tagout)
- Manual Material Handling and Lifting
- Cranes, Hoists, and Rigging Safety
- Electromagnetic Energy (EME/RF) Safety

For SBA Team Members, electronic versions of the Site Safety Manual and all referenced forms are available on SIGNALS, the company provided internal website. Contact the SBA Safety Department for any safety-related questions regarding the Site Safety Manual and referenced forms.

Contractor(s) shall have and must abide by their own health and safety program along with the SBA Site Safety Manual, as well as any client's health and safety policies, as applicable. Contractor shall at all times conduct operations in such a manner to avoid the risk and endangerment to health, bodily harm to persons, damage to property, and damage to the natural environment. Contractor shall comply with all applicable safety and health laws and regulations. Contractors must have in their possession and use all personal protective equipment required for the work activities to be performed. Contractor shall furnish all environmental, health and safety documentation, procedures and plans, as well as safety equipment and instructions required to complete the work.

2.1 Definitions

- Competent Person – One who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous or dangerous to employees and who has authorization to take prompt corrective measures to eliminate or control exposure to the hazards.
- Suspension Trauma – Also known as “harness-induced pathology” or “orthostatic shock while suspended”; is the development of presyncopal symptoms and loss of consciousness if the human body is held motionless in a vertical position for a period of time while suspended in a full body harness.
- Ride the Line – The means or practice of hoisting a worker via a load line and winch or attaching directly to the load line of a crane. (STRICTLY PROHIBITED)

- Gin Pole - A lifting device that consists of a latticed or tubular boom or mast that allows headroom above the highest fixed point of a structure used to raise (or lower) successive sections of structural steel, antennas or equipment into position.
- Incident – Employee/contractor injuries requiring medical attention, fatalities, property damage (SBA owned), and 3rd party damage including tenant equipment (general liability claims).

3.0 TRAINING AND COMMUNICATION

This section details the health and safety training requirements for SBA employees and contractor personnel. Contractor's personnel are required to have completed health and safety training applicable to the scope of work to be performed. SBA's safety training program and practices entail formal and informal health and safety training provided by SBA's Safety Department and approved outside sources. Per the scope of work being performed, all SBA Team Members and contractors shall adhere to federal and local regulatory requirements with regards to training. This training may include but not limited to the following:

- | | |
|--|---|
| <ul style="list-style-type: none"> • Trenching and Excavations • Manual Lifting • RF Site Safety Awareness • Fall Protection • Emergency Preparedness • Housekeeping • Electrical Safety/Lockout Tagout • Forklifts • Hot Work • Concrete Work • Personal Protective Equipment • First Aid/CPR | <ul style="list-style-type: none"> • Incident Investigation and Reporting • SBA Policies/Procedures • Hazard Communication/GHS • Site Safety Assessment • Ropes/Knots • Tower Rescue • Tower Site Security • Authorized/Competent Climber • Hand and Power Tool Safety • Cranes, Hoists, and Rigging Safety • Bloodborne Pathogens • Capstan Hoist • Hazard Identification |
|--|---|

SBA Team Member training is documented through completion of attendance sheets and skills evaluations or online certifications. Training records are maintained in accordance with SBA's record retention policy.

4.0 WORKSITE ANALYSIS AND INSPECTION

4.1 Pre-Work Assessment/Job Safety Analysis (JSA)

It is the responsibility of SBA field supervision, contractors, or designated SBA Team Member to perform a Pre-Work Assessment/JSA of the jobsite to identify all pre-existing and potential hazards. All visitors (non-worker related) must be escorted and provided with essential information related to site hazards and emergency response requirements. Necessary safety measures, as determined by the Pre-Work Assessment/JSA, must be taken to eliminate identified hazards.

Information required for completion of the Pre-Work Assessment/JSA includes:

- Job information
- Project personnel
- Emergency procedures
- Job-site exposures
- Hazard control measures
- Civil work information
- Tower work information
- Review and signature block

Safety hazards and control measures in the Pre-Work Assessment/JSA shall be discussed with field crews prior to the start of work and additionally if the hazards change.

The Pre-Work Assessment/JSA shall be reviewed each day and revised accordingly to ensure that hazards have not changed. All employees and contractors onsite shall sign the assessment indicating they have reviewed it and understand the hazards and safety requirements.

The Pre-Work Assessment/JSA must be located in an area that is known to all employees and remain onsite for the duration of the job.

4.2 Equipment Safety Inspection

Equipment safety inspections include, but may not be limited to:

- Personal fall arrest systems (PFAS)
- Ladders and scaffolds
- Hand and power tools
- PPE
- Ropes (load ropes, tag ropes, safety ropes)
- Rigging equipment
- Fire extinguishers
- First-aid kits
- Vehicles
- Forklifts
- Cranes and hoists
- Personnel lifts (aerial lifts)
- Hot work equipment (cutting and welding)
- Electrical (temporary or permanent)

Inspections may be required on a pre-use, daily, or monthly basis, and accordance to regulatory requirements or manufacturer's recommendations. Inspections shall be documented. Equipment safety inspections are performed by the equipment operator or user prior to equipment use or as required.

4.3 Health and Safety Audits

An SBA Safety Team Member may conduct safety audits to identify any unsafe conditions, work practices, or non-compliance issues and review of required safety documentation on any SBA owned or managed site regardless of the Scope of Work. The purpose of these audits will be to review compliance with federal regulations and SBA health and safety requirements. The audit will be documented and housed on the internal SBA Safety Management Software system. The audit findings will be reviewed and discussed with field supervision, SBA Management, and Contractor Management when applicable

4.4 Incident Reporting

4.4.1 Reporting of Work-Related Injuries/Illnesses and Near Misses

All incidents must be reported within 24 hours. All incidents will be tracked and investigated using SBA Safety Management Software.

Eligibility for Workers' Compensation benefits is governed by law, thus it is mandatory that employees immediately report all work-related incidents, injuries, and illnesses to their manager/supervisor. The supervisor will contact a Safety Department Representative.

SBA Team Members involved in an incident must notify their Supervisor once aid is rendered and the scene is safe. Investigations of incidents will be conducted as soon as possible following the incident. Incident Investigations are managed by the Safety Department and follow the International Incident Action Plan.

Where required by law, SBA Safety Department will assist local SBA Management in reporting of incidents to the appropriate government entity.

4.4.2 Motor Vehicle Incident – SBA Team Member Only

A report of all work-related motor vehicle (SBA-owned, rental, or employee-owned) incidents must be made immediately after the incident.

- Contact police. For injuries, contact emergency services. If safe, follow first-aid/CPR training.
- Contact Supervisor who will notify the Safety Manager of the incident.
- Take photographs and collect information at the incident scene. Photos shall be of whole scene, affected vehicle/s, surrounding areas. Information collected, shall include other parties names/information/insurance and police report number.
- Assist SBA Safety Team Member in incident investigation.

4.4.3 Work-Related Injury – SBA Team Member Only

- If injury is life threatening, call medical assistance. If safe, follow first-aid/CPR training.
- Immediately call Supervisor to report injury. Supervisor will contact the Safety Manager.
- Assist SBA Safety Team Member in incident investigation.

4.4.4 Property Damage or Theft – SBA Team Member Only

- Contact police to report incident.
- Contact Supervisor who will notify the Safety Manager of the incident.
- Assist SBA Safety Team Member in incident investigation.

4.4.5 Contractor Incident

Contractors who have an incident on-site must immediately report the incident to SBA.

5.0 EMERGENCY RESPONSE

The Pre-Work Assessment/JSA form shall contain all local emergency services numbers, company contact information, directions to the worksite, nearest occupational healthcare facility and/or hospital. A designated evacuation/assembly point that will serve as a gathering point in the event of an emergency shall be identified and communicated to all site personnel.

All SBA worksites shall have a minimum of two persons onsite at all times who hold a current first-aid (FA) and cardio-pulmonary resuscitation (CPR) certification. Contractors must also follow any local medical training requirements.

5.1 Emergency Communications

If an emergency situation occurs, emergency services should be summoned by dialing designated emergency number. In the event cellular service is not available on the worksite, the nearest location for landline or cell service shall be indicated on the Pre-Work Assessment /JSA.

5.2 Emergency Preparedness

The geographical location of the site has the potential to influence the type of emergency that may be encountered (e.g., hurricane near the coast, volcanos, tsunamis, earthquakes). The following are examples of emergencies that may occur on SBA worksites and the procedures to follow:

5.2.1 Medical Emergency

If a medical emergency (heart attack, fall from a height, etc.) occurs on the work site:

- Perform medical treatment to the degree that training allows (e.g., CPR, bandaging). If injuries are significant (as determined by the first-aid/CPR-trained responder), then:
- Notify emergency services or the local ambulance service immediately and give the operator the following information:
 - Your name and the name of the company;
 - Site location using longitude and latitude numbers (can be retrieved from the Pre-Work Assessment/JSA form);
 - Directions to the site (directions can be retrieved from the Pre-Work Assessment/JSA form);
 - Nature and severity of the emergency; and
 - Wait for and follow any instructions from the emergency services operator. DO NOT hang up unless the operator instructs you to do so.
- Once emergency medical services arrive on site, assist the medical personnel in whatever manner they request.

5.2.2 Fire

If a fire occurs on the worksite, notify emergency services or the local fire department and give the operator the following information:

- Your name and the name of the company;
- Site location and directions to the site (directions can be retrieved from the Pre-Work Assessment/JSA form);
- Nature and severity of the emergency; and
- Wait for and follow any instructions from the emergency services operator. DO NOT hang up unless the operator instructs you to do so.

Extinguishing:

- If the fire is small (incipient stage), attempt to extinguish with fire extinguishers on hand;
- If the fire cannot be controlled with the extinguishers on hand, evacuate the work area and proceed to the designated Evacuation/Assembly Point;
- Perform a count of personnel to ensure that everyone is at the designated point; and
- Wait for the fire department to arrive.

5.2.3 Other Severe Weather Conditions:

When severe weather conditions are present in the area of an SBA worksite:

- If any lightning is visible, immediately discontinue any outdoor work. Climbing on any tower or working on rooftop when lightning is visible is prohibited. Remain off the tower or rooftop for thirty minutes after the last visible lightning.
- If high winds (greater than 40kph) are present at the SBA worksite, work on the tower or rooftop must be discontinued or be reevaluated by the site competent person. All materials and equipment must be secured to prevent incidental displacement.

6.0 TOWER SITE SECURITY

Where applicable, a threat assessment shall be performed to determine if additional security measures shall be taken to protect Team Members, Contractors or assets.

6.1 Security during Tower Construction

The most significant security risks during the work on a tower site are theft of tools and equipment, and workplace violence (including criminal activity), or injury. The following guidelines shall be observed as much as feasible during tower construction:

- Indicate the perimeter of the tower site with barrier tape, and have the security fence erected as early in the site work as feasible.
- Be observant of site conditions and prevent unknown persons from accessing the site.
- Establish access points for vehicles and park so as to limit access to the site.
- Clean up the site at the end of each shift, placing tools and equipment in locked containers.
- Require that site visitors be escorted at all times.
- Lock out or remove the keys from equipment prior to departure from the site at the end of the day.
- Excavations left overnight must be protected and appropriately secured from unauthorized entry.
- Ensure all equipment and materials are secured and left in a safe and stable condition.
- Post signage indicating existing and created hazards (Ex: SBA's 4-in-1 Safety Sign).

6.2 Security for Existing Towers

The most significant security risks for existing towers are vandalism and injury to trespassers. The following guidelines shall be observed as much as feasible for existing towers:

- A security fence is the minimum security for isolated tower sites (not located on buildings).
- A lock will be used to secure the access gate.
- Regulatory signs will be posted as required.
- Some sites may have special security requirements, such as card access and remote video monitoring. These are typically customer requirements, but may be adopted at SBA's discretion on a site-specific basis.

6.3 Security for Controlled Access Areas

- Access to rooftops and similar sites is generally controlled by property management.
- Some sites may have special security requirements, such as card access and remote video monitoring. These are typically customer requirements, but may be adopted at SBA's discretion on a site-specific basis.

7.0 PERSONAL PROTECTIVE EQUIPMENT (PPE)

- PPE is to be selected and used based scope of work and hazard.
- Supervisors will ensure all employees maintain their PPE and acquire new equipment when needed. Changes in PPE should be evaluated based upon changing site hazards and/or scope.
- All PPE must be marked with the appropriate American National Standard Institute (ANSI) standard, where applicable.
- All PPE must be inspected prior to each use. PPE found to have defects, damage, or excessive wear, or is otherwise non-compliant, shall be removed from service.
- If additional clarification is needed on PPE selection, contact SBA Safety Department Representative.

7.1 Head Protection

- All head protection shall comply with ANSI-Z89.1.
- Hardhats are required at all times on SBA owned and managed property. ANSI-approved, Class E, climbing helmets are permitted when working at heights.
- All head protection must be worn in accordance with manufacturer's recommendations.
- Inspect hardhats for cracks and defects daily.

7.2 Eye Protection

- All eye protection must comply with ANSI-Z87.1.
- ANSI-approved safety glasses with side shielding must be worn when exposed to eye hazards such as flying or falling objects, airborne dust, concrete chipping, and grinding.
- In some instances (chemical handling, excessive dust, grinding operations) additional eye protection (face shields, goggles) must be worn.
- Appropriate eye protection must be worn for welding and cutting (minimum density - #3).

7.3 Hand Protection

- Wear suitable work gloves (leather, Kevlar) while handling materials that can cause lacerations, abrasions, burns, or other injuries.
- Wear chemical-resistant gloves when handling or dispensing hazardous substances as referenced by the chemical safety data sheet (SDS).
- Utilize electrically insulated gloves when performing work on electrical components greater than 50 volts which are energized and exposed or conducting live electrical (AC/DC) work.

7.4 Foot Protection

- When applicable, safety-toed shoes shall be worn.
- Wear substantial leather work shoes or boots with non-slip, non-conductive soles to protect feet from contact with physical hazards at all times.
- Rubber boots are required when performing concrete work.
- Employee shall, at a minimum, use a slip-on metatarsal foot guard when using compactors or jackhammers.

7.5 Hearing Protection

- Hearing protection shall be worn in high noise areas (difficult to verbally communicate within arm's reach) or areas with measured levels of 80 decibels (Time Weighted Average) or greater.
- Hearing protection shall be maintained in a clean and sanitary condition.
- Personnel wearing hearing protection shall receive training on noise hazards and use of hearing protection.
- Acceptable hearing protection includes ear plugs (foam or molded) or ear muffs.
- Cotton, tissue, cloth, headphones/earphones, or other make-shift perceived sound-dampening materials are prohibited.

7.6 Respiratory Protection

SBA has conducted a hazard assessment and determined that SBA's normal work operations do not require the routine use of respiratory protection to maintain employee exposures below regulatory exposure limits; however, in the interest of employee comfort, SBA will allow the voluntary use of nuisance-dust mask for qualified employees who request them.

- Requests for use of an air-purifying or supplied-air respirator shall be reviewed and approved by the Safety Department.

- Only filtering face pieces (commonly known as dust masks) will be used for nuisance exposures. No cartridge air-purifying or any air-supplying respirators will be used for controlling nuisance exposures.
- The voluntary use of nuisance dust mask is allowed to provide an additional level of personal comfort, even when not required by the Pre-Work Assessment.
- Prior to the voluntary use of nuisance-dust masks, workers must complete a Dust Mask Request form and be trained in the proper use of dust masks.

Respiratory protection for contractors: It is understood that work performed by contractors may require the use of tight-fitting, air-purifying respirators. Accordingly, respiratory protection usage by the contractors will be determined by the subcontractor's respiratory protection program and local regulations.

8.0 FOCUS FIVE TOPIC 1 – FALL PROTECTION

It is a requirement of SBA with regard to the hazards of elevated work that all Team Members and contractors maintain 100% fall protection at all times. Elevated work is considered work on elevated surfaces that have an unprotected side or leading edge that is 1.8 meters/6 feet or more above a lower level.

The following section identifies the specific field safety requirements for safe-work practices and fall protection equipment for hazards associated with elevated work on communication towers, including antennas, broadcast, stealth, rooftops, and other structures that support communication-related equipment.

8.1 General Requirements

100% fall protection, compatible with the scope of work, is to be provided, used, and maintained pursuant with this program when personnel are exposed to falls in excess of 1.8meters/6 feet. All Equipment used for Fall Protection and Rescue must meet the requirements of the latest revision of ANSI Z359.

Positioning devices SHALL NOT be used in place of a Personal Fall Arrest Systems (PFAS), and their use will be considered free climbing when not used in conjunction with PFAS.

Free climbing (zero fall protection) is strictly prohibited.

8.1.1 Job Planning

All projects requiring climbing shall be planned by a Competent Person. Pre-job planning shall include identification of primary and alternate climbing routes, evaluation of obstructions, qualifications/training of climbers, PFAS, and any other factors associated with climbing activities. To reduce the concern for potential suspension trauma in the event of a fall, a rescue plan shall be developed as part of pre-job planning.

8.1.2 Fall Protection Systems Evaluation

For the duration of each project, the Competent Person shall evaluate work operations, climbing facilities, weather conditions, and PFAS to determine if any modifications to the pre-job plan are required.

8.1.3 Inspection

PFAS shall be inspected and the inspection documented (using the Personal Fall Arrest System Checklist) by a trained employee daily (or prior to use) for wear, damage, defect, or other deterioration. Defective equipment shall be identified and tagged as unsafe and immediately removed from service.

8.1.4 Training/Qualifications

Before performing work at heights above 1.8 meters/6 feet, SBA Team Members and contractors must receive required fall protection training. Training must be documented and include topics related to telecommunications work at height (EX: RF, Anchor selection, Rescue, Climbing Facilities, Controlled Descent, Wire Rope Safety Climb Systems, PPE Equipment, Inspections).

8.1.5 Personal Fall Arrest Systems (PFAS)

- Employees must pre-plan their climbing activities to insure they have the proper PFAS components to perform the job safely.
- PFAS will require at least a full-body harness with shock absorbing twin-leg lanyards or retractable lifeline and an anchorage point rated at 2267 kilograms/5,000 pounds.

8.1.6 Anchorage Points

- All anchorage points for personal fall arrest systems shall be capable of supporting 2267 kilograms/5,000 pounds per employee attached.
- All anchorage points for work positioning shall be capable of supporting 1360 kilograms/3,000 pounds per employee attached.
- All anchorage points for fall restraint shall be capable of supporting 453 kilograms/1,000 pounds per employee attached.
- Whenever possible, an overhead anchorage point should be selected to reduce the contact hazards and forces associated with a fall.
- Anchor connecting straps must be rated for a minimum 2267 kilograms/5000 pounds and intended for fall protection use.
- Step bolts may not be used as anchorage points.
- Anchorage points for vertical lifelines shall be independent of any other system and shall be capable of supporting 2267 kilograms/5,000 pounds per employee using the anchorage.
- All safety lines and lanyards shall be protected against being cut or abraded.
- When vertical lifelines are used, no more than one employee shall be attached to any one lifeline. Synthetic ropes used in vertical lifelines shall have a minimum breaking strength of 2540 kilograms/5,600 pounds. Lanyards used with vertical lifelines shall not exceed 1 meter/3 feet.

8.1.7 Full-Body Harness

- A personal fall arrest system shall include a full-body harness that is properly fitted to the worker and utilized to manufacturer's specifications.
- The use of a body belt is prohibited as an approved PFAS.
- Prior to accessing towers or rooftops, employees must conduct an inspection of PPE, and complete the Personal Fall Arrest System Checklist form. The completed forms must remain accessible and at the jobsite at all times. During inspection, damaged PPE found must be removed from service immediately.

8.1.8 Connecting Devices

- A twin-leg shock absorbing lanyard shall be utilized to attach from the full-body harness to an approved anchor or connection point.
- For use with a PFAS the attachment point of the lanyard to the body harness shall be to the D-ring in the center of the wearer's back (Dorsal).
- Positioning devices shall only be utilized in conjunction with fall arrest to allow the worker to maintain three points of contact and have "hands free" to perform work activities. Positioning devices SHALL NOT be used in place of a fall arrest system and will be considered "free climbing". Free climbing is not permitted under any circumstances.

- Snap hooks and carabineers shall have a minimum of two deliberate actions required to open. These devices must be self-locking and shall not be connected to each other.
- Snap hooks and carabineers shall be capable of sustaining a 22.2kN tensile load and gate-strength rated at 16kN.
- Connection devices, including carabineers, cross-arm straps, self-retractable lifelines, anchor connecting straps, snap hooks, cable/rope grab, lanyards, etc., shall be utilized and maintained to manufacturer's specifications.

8.2 Elevated Tower Work

The following safety precautions are intended to inform all personnel working in elevated positions of the skills and techniques necessary to safely construct, modify, and install telecommunications equipment on towers.

AT NO TIME SHALL THE TOWER CLIMBER "RIDE THE LINE" TO GAIN ACCESS TO THE STRUCTURE.

- Minimum of two trained climbers must be onsite while performing elevated tower work.
- Review the Pre-Work Assessment to identify potential hazards and control measures associated with elevated work activities.
- Discuss and select the safest path of travel to access, ascend, and descend the tower.
- Inspect all tools, equipment, and rigging to ensure it is in a safe and reliable condition.
- Inspect structure and supports for signs of structural deterioration including corrosion, foundation or anchorages, missing or bent braces/members, missing bolts, weldment cracks, guyed wires tensions and condition, obstructed weep holes, etc.
- When feasible, assemble tower components on the ground prior to hoisting to minimize potential hazards.
- Use tag lines when lifting materials by crane or other means of hoisting.
- If the structure has an existing climbing facility and safety climb, employees shall utilize them to access the work locations.
 - It is expected that only trained climbers will inspect the tower and the safety climb prior to use.
 - If the structure does not have an existing climbing facility or safety climb the following steps will be taken:
 - The first climber will climb the structure while maintaining 100% fall protection using twin-leg lanyards. (Note: Step bolts are not approved anchor attachment points.) Upon reaching the work location, the climber will attach a vertical lifeline for fall protection.
 - Once rigged, employees may access the tower utilizing the lifeline in conjunction with a rope grab device.
- Cable coaxial wave-guide ladder supports shall not be used for access/egress climbing or for personal fall arrest/positioning anchorage points.

8.2.1 Erection of Monopoles

A comprehensive fall protection plan must be established prior to the erection, maintenance and access of a monopole, including but not limited to - slip joint style, bolted flange and stealth poles. This plan shall include the means for the climber to maintain 100% fall protection. The following examples of industry best practices can be utilized, based on the type of tower and scope of work, to maintain compliance with fall protection requirements:

- Vertical lifeline attached to each section being erected, accompanied by the use of a rope grab device. The lifeline must be continuous and secured from the top of the structure to ground level.

- Step-peg anchor brackets that are spaced no further than 1.2 meters/4 feet apart.
- The use of anchor slings for climber fall arrest anchorage points.

8.2.2 Guyed Tower and Self-Supporting Tower

Fall protection associated with guyed towers and self-supporting towers is consistent with other elevated tower work fall protection safety requirements.

8.2.3 Antenna Supporting Mounts

Antenna supporting mounts are typically not adequate enough to sustain the forces applied during a fall and SHALL NOT be utilized for anchorage. The climber shall attach all fall arrest back to the tower structure, preferably the leg of the structure or monopole. It is the responsibility Climber to ensure their attachment point meets the requirements of an improvised anchor 2267 kilograms/5,000 pounds.

8.3 Rooftop Work

The following safety precautions are intended to inform all personnel working on rooftops of the requirements necessary to safely perform elevated work.

- During the Pre-Work Assessment/JSA, rooftop anchorage points shall be identified and documented.
- The existing rooftop parapet wall or guardrail system shall be 1 meter/39 inches or higher with no breaks to be considered compliant and acceptable for providing fall protection. The top rail shall be capable of supporting a load of 90 kilograms/200 pounds applied in any direction.
- Guardrails must also be equipped with a mid-rail and toe board.
- Warning lines shall be placed to prevent exposure to unprotected leading edges.
- PFAS, fall restraint system or other approved method shall be utilized for all rooftop work within 1.8 meters/6 feet of the leading edge.
- Unstable or loose equipment and materials must be kept away from the roof's edge and secured to prevent falling objects.
- Roof opening must have covers that meet the following requirements:
 - Able to withstand at least twice the weight of employees, equipment, and materials.
 - Secured to prevent incidental displacement.
 - Marked with the word *Hole* or *Cover*.

8.4 Controlled Descent/Vertical Lifeline

The following requirements identify the skills, techniques, and equipment to be used during a two-rope controlled descent:

- **The act of rappelling by SBA Team Members and contractors to a lower elevation is strictly prohibited. Rack bars, figure 8s, Fisk Descenders, and other recreational devices shall not be used.**
- During the Job Safety Analysis (JSA), the hazards and necessary control measures can be identified and documented on the Pre-Work Assessment.
 - The descent line and the vertical lifeline shall be attached to separate anchorage points capable of supporting 2267 kilograms/5000 pounds each. The Climber shall ensure capability between the equipment and ropes being utilized for controlled descent. A maximum 1 meter/3 feet lanyard and rope grab, attached to the user's dorsal d-ring, shall be attached to the lifeline. The controlled decent device shall meet the requirements of ANSI z359.

8.5 Rescue for Elevated Work

The following requirements identify the steps to be taken when performing a rescue of an injured worker from an elevated workstation.

- All SBA Team Members and contractors responsible for onsite emergency rescue shall be trained in Tower Safety and Rescue.
- All Rescue equipment and procedures must meet the requirements of the latest revision of ANSI Z359. Recreational descent devices such as Rack Bars, Figure 8's and Fisk's are prohibited for rescue.
- Prior to work, the work crew will hold a tailgate meeting to discuss the written site specific rescue plan as part of the Pre-Work Assessment/JSA.
- When only two trained climbers are onsite and the scope of work requires both to conduct elevated work the following must be adhere to:
 - Must have a means of communication to 3rd party (Supervisor, Emergency Services), and/or...
 - Rescue/descent equipment must be attached at elevated work location prior to work being conducted.
- To ensure rescue information is communicated to each employee, the crew shall conduct a Pre-Work Assessment/JSA that includes:
 - Adequate communication device (i.e. cell phone with signal)
 - Internal or external rescue resources
 - Type and location of rescue equipment
 - Access and anchor points
 - Rescue method
 - Location of first-aid kit
 - Longitude and latitude coordinates (note: aerial evacuation coordinate sites may be separate)
 - Directions and map to site
 - Emergency numbers and contact numbers
- Rescue Methods – The following high-angle rescue methods are provided as examples of steps and techniques to be considered during the rescue and removal of a fallen worker. **Note:** These are not exclusive methods for rescue, and actual rescue techniques and methods shall be pre-determined through completion of a rescue plan and in accordance with rescuer's training.
 - Self-rescue occurs when the fallen climber pulls themselves to safety after a fall, where no assistance is needed.
 - Assisted self-rescue occurs when a rescuer provides assistance or tools that allow a fallen employee to pull themselves back to safety after a fall.
 - Rescue by pick-off occurs when (typically a single rescuer method).
 - The rescuer will attach the rescue rope above the injured employee.
 - The rescuer will connect their descending device to the rescue rope and descend into position to connect to the victim.
 - At no time shall the victim be attached to the rescuer; victim shall be attached to the rescue device.
 - The rescuer may utilize a block and tackle system (3:1 - Z rig/block and tackle) to raise the fallen worker out of their fall arrest lanyard.



- After positive transition of victim's weight to the rescue system, the rescuer shall disconnect the victim's fall arrest lanyard.
- The rescuer will continue a stable descent with victim attached until ground level is reached.
- Rescued by lower (typically a two or more rescuer method).
 - Rescuer 1 climbs to an elevated point above victim and secures block and rescue rope to structure. Then, Rescuer 1 connects rescue rope to victim's dorsal D-ring.
 - Rescuer 2 rigs rescue device/system at ground or elevated anchor point.
 - Rescuer 2 raises victim to loosen tension on PFAS by use of 3:1 z-rig/block and tackle, or vector force.
 - Rescuer 1 detaches victim from PFAS.
 - Rescuer 2 lowers victim utilizing ground-anchored rescue device. Note: Tag lines may be needed to control victim movement during descent.
- First aid should be administered to the injured employee by a FA/CPR-trained person until the local emergency medical team arrives.
- After rescue, immediately contact the Safety Department as soon as possible.
- The site and all equipment should be secured until a proper incident investigation can be performed.

8.6 Personnel Hoisting

The following section identifies the safety requirements involved during hoisting personnel using cranes/man basket and aerial lifts.

This procedure does not include the following methods for lifting personnel (Riding the Line). Hoisting workers by any means outside of the approved methods below is **STRICTLY PROHIBITED**

These methods are last alternatives when conventional means of accessing the tower have been reviewed and considered not feasible. ***These methods are prohibited without authorization from the SBA Safety Department. All requests must be in writing.***

8.6.1 Personnel Platform/Man-basket

8.6.1.1 Job Planning

The use of cranes or derricks to hoist employees on personnel platforms/man-baskets shall only be used when no safe alternative personnel lifting method is feasible.

Field supervision should ensure that the Personnel Hoisting Permit is completed and all requirements have been fulfilled before hoisting any personnel. All elements of the permit must be completed prior to the lift and include:

- Job information
- Rating of lifting equipment
- Equipment inspection
- Pre-lift meeting
- Trial lift / proof test
- Approval signatures

The crew will complete a new Personnel Hoisting Permit each day of the project and any time there is a change made to the crane location, rigging equipment, load, or design of the lift.

The Personnel Hoisting Permit shall be maintained and available for review at the jobsite until the job is complete.

8.6.1.2 Crane (Man-basket)

- The crane shall have proof of the annual inspection onsite.
- The crane must have a boom angle indicator that is visible to the operator. Cranes with telescoping booms must be equipped with a device that clearly shows the boom's extended length or the load radius must be accurately determined before hoisting employees.
- The crane must be equipped with an operational anti-two block device.
- The crane load-line shall not be constructed of rotation-resistant wire rope.
- The crane must be within 1% level and outriggers should be placed on uniformed cribbing.
- Hooks shall be equipped with a positive locking safety latch.
- The combined weight of the loaded platform and its rigging must not exceed 50% of the rated capacity of the crane.
- Tag lines shall be used to prevent the man-basket from contacting the structure during hoisting. Specific circumstances or condition that precludes its use must be documented.
- Workers are not permitted to attach directly to load line.

8.6.1.3 Personnel Platform

- The personnel platform must be designed with a minimum safety factor of five and must be designed by a qualified engineer or a qualified person who is competent in structural design.
- The platform must have a permanent marking or plate showing the rated capacity and the platform's weight. The load of the personnel platform may not exceed its rated capacity.
- The platform must be rigged to the load block to minimize excess swaying or tipping due to movement of the personnel.
- The personnel platform must be provided with a standard guardrail system that is enclosed from the toe-board to the mid-rail. The platform will have a grab rail, overhead protection when needed, and adequate headroom. If access gate is provided, the gate must have a locking device in place during hoisting.

8.6.1.4 Rigging (man-basket)

- When hoisting personnel, the wire rope must be capable of lifting seven times the maximum permitted load.
- Bridles used as a connection for the platform must not be used for any other purpose.
- When a wire rope bridle is used to connect the platform to the load line, the crew will ensure the bridle legs are connected to a master link or shackle.

8.6.1.5 Pre-Lift Meeting

Field supervision will conduct a pre-lift meeting prior to the load test, trial lift, and inspection. The pre-lift meeting will be repeated each time a lift is performed from a new location, new day, or when a new worker is assigned to the operation.

Field supervision, crane operator, and workers will attend the pre-lift meeting to discuss the following:

- Communications
- Verbal/hand signals/radio
- Hoisting procedures
- Lift test, proof test, and inspections

8.6.1.6 Proof Testing, Trial Lift, and Inspections

Immediately prior to placing personnel on the hoist line, the supervisor with the crew shall conduct a trial lift, proof test, and inspection. All proof tests, trial lifts, and inspections shall be documented and remain onsite until the project is complete.

The crew will conduct a proof test to 125% of the platform's rated capacity by holding it in a suspended position for five minutes with an evenly distributed load. This test can be accomplished using a dynamometer at the base of the tower or using a pre-determined load. For example, if the rated capacity of the man basket is 453 kilograms/1000 pounds, the load weight for the proof test must be 567 kilograms/1,250 pounds. ($1,000 \times 1.25 = 1,250$).

Once the proof test has been conducted the crew will perform a trial lift. The trial lift will be performed from the ground to the location to which the employees will be hoisted. The hoist operator shall determine that no interference exists.

After the proof test and trial lift are complete, the Competent Person shall perform an inspection of:

- Wire ropes to ensure they are properly seated on drums and sheaves.
- Hoist, base support, and foundation.
- Multiple part lines to see that they are not twisted.

If defects are found during the inspections, corrections must be made and the proof test, trial lift, and inspections must be repeated. The proof test, trial lift, and inspections must also be repeated whenever the hoist is moved or at the beginning of each day during multi day projects.

8.6.1.7 Safe Operations during Personnel Lifting

- Workers will use PFAS as specified by the Personnel Hoisting Permit and attach a lanyard to the personnel platform.
- Workers shall keep all body parts inside the platform during raising, lowering, and positioning.
- Workers shall work from the platform floor; ensure platform is secured prior to exiting or entering.
- All materials and tools must be secured to prevent falling from platform.
- Hoisted employees shall stay in direct view or communication with the crane operator at all times. In some cases a signal person may be used.
- The crane operator must be at the controls when the platform is occupied.
- Stop all hoisting operations during high winds or inclement weather.

8.6.2 Aerial Lifts

- For the purpose of this document, aerial lifts include scissor lifts, single-man vertical lifts, and articulating boom lifts.

- Operators shall read and comply with all warning signs and become familiar with the aerial lift operator's manual.
- Ensure operators receive documentation of aerial lift orientation from the equipment rental company when the equipment is delivered to the jobsite.
- Do not utilize the aerial lift to hoist construction materials or exceed the platform capacity or weight limits.
- Use lift only to hoist personnel and small hand tools.
- Maintain 100% fall protection within the platform/basket.
- Attach PFAS to approved anchor point inside the platform/basket. Do not attach PFAS to point outside the platform/basket.
- Operator of aerial lift shall perform and document a visual inspection prior to use. An Aerial Lift Equipment Checklist is available as a tool for documentation on SBA's website.
- Do not stand on mid or top rail of platform to access work position.

8.7 Ladders

- Ladders must have labels and be rated. The user must comply with manufacturer's recommendations. "Home-made/Job-Made" ladders are not permitted on site.
- All ladders shall be inspected for defects or damage prior to each use. Damaged ladders must be removed from service.
- Face the ladder and maintain three points of contact while ascending and descending a ladder.
- Do not carry or lift any material while ascending or descending a ladder.
- Do not use metal ladders around or near electrical equipment.
- Do not tie ladders together.
- Correct slope for a straight/extension ladder is 4:1.
- Extension type ladders must be secured when used (Tied off)
- When an extension type ladder is used to access an elevated work location, the ladder must extend 1 meter/3 feet above the work location.
- Step-ladders must be used in the open and locked position.
- Do not stand or step on the top platform or top step.



8.8 Scaffolds

- Scaffold assembly, disassembly, alteration, movement, and repair shall be done by a Competent Person.
- All scaffolding must be rated for intended use.
- Scaffolds shall be inspected before each work shift.
- Rated Guardrails, mid-rails, and toe boards shall be installed on all open sides or edges.
- Place scaffolds on secure footing. Unstable objects, such as boards, boxes, loose brick, or hollow concrete block must not be used.
- Report any damage immediately.
- Do not climb on or work from the cross bracing, top rail, or mid-rail of a scaffold.
- Equip scaffolds with ladders and do not climb structural members.

9.0 FOCUS FIVE TOPIC 2 – ELECTRICAL SAFETY/LOCKOUT TAGOUT

All SBA Team Members and contractors shall be informed of the existence and associated hazards posed by the energized electrical systems that exist on the project site through the Pre-Work Assessment/JSA.

All electrical circuits must be placed into an "electrically safe work condition" (i.e., de-energized, locked out, and tested/verified prior to performing work on the electrical components, equipment and wiring, etc.). Working on "live" energized electrical

components, equipment, and wiring is not permitted, except when de-energizing the equipment introduces additional or increased hazards or is not feasible due to equipment design or operational limitations (>50 vDC).

9.1 Electrical Hazards

Potential electrical hazards include:

- Contact with battery terminals during installation and maintenance.
- Contact with exposed electrical circuits when opening panels, making connections, troubleshooting, replacing lighting, and alarm testing.
- Contact with exposed energized circuits or wiring due to damage, defects, or excessively worn electrical equipment/components.
- Failure to use ground fault circuit interrupters.
- Installation of temporary and permanent power supplies for telecommunication equipment.
- Generators
- Contact with underground and overhead electrical power lines.

9.2 Safe Electrical Work Practices

- Working space and clearances – Maintain adequate clearances.
- Work near overhead power lines – Any non-qualified person, vehicle, or mechanical equipment working in an elevated position near overhead power lines must maintain at least a 3 meters/10 foot clearance (in reference to the closest conductive object near the power line) for voltages to ground of 50 kV or below and an additional 4 inches for every 10 kV over 50 kV.
- Labeling and marking of electrical equipment – All electrical distribution equipment, panels, and cabinets of 50 volts or higher will be clearly labeled identifying the voltages present and for general arc flash hazard warning. Every disconnect means shall be clearly labeled to indicate which electrical component it controls.
- Ground fault circuit interrupters (GFCIs) – Shall be used for all construction work activities.
- Voltage-rated tools – All work on electrical components, equipment, and wiring will be done only using insulated tools rated for at least the voltage present in the system on which work is being performed.
- Flexible extension cords:
 - Flexible extension cords (extension cords) used on site shall be outdoor rated and must contain an equipment-grounding conductor. No flat cords.
 - “Home-made/Job-made” extension type cords are not permitted.
 - Replacement end connections are not permitted.
 - Flexible extension cords shall not be used as a substitute for the fixed wiring of the structure, run through holes in walls, ceilings, or floors, run through doorways, windows, or similar opening, attached to building surfaces, or concealed behind building walls, ceilings, or floors.
 - At no time shall flexible extension cords be spliced or taped together.
 - Portable cord equipment, plug-connected equipment, and flexible cord sets must be visually inspected before use on each shift for external defects and evidence of possible internal damage.
 - DO NOT use flexible cords to raise, lower, or pull portable electrical equipment.
 - Ensure hands are dry when plugging and unplugging flexible cords and extension cords.

9.3 Electrical PPE

- Wear the level of PPE suitable for protection against the electrical and arc flash hazard that exists, as indicated on the arc hazard warning label on the equipment. It is the responsibility of the Competent Person to wear the proper PPE suitable for protection against the electrical hazards present. Some examples of approved PPE are as follows:

- Dielectric insulated gloves that are 00 rated voltage gloves.
- Face shield and electrically rated face shields.
- Fire retardant clothing, clothing made of natural fibers, nomex or PBI fibers.
- Wearing conductive jewelry or clothing (e.g. watch bands, bracelets, rings, necklaces, key chains, cloth with conductive thread) while performing electrical work is strictly prohibited.

9.4 Lockout/Tagout Procedure

- Notify all affected persons of the pending lockout.
- Identify all sources of power required to be de-energized and locked out.
- De-energize equipment (bleeding residual energy).
- Apply company-provided energy isolation devices and locks with identification tags (one lock per authorized person for each lockout point).
- Test the equipment using a voltmeter to verify the equipment is de-energized.
- Perform required work.
- Prior to re-energizing system ensure tools and people are removed and any guards have been replaced.
- Inform affected employees of the removal of locks and tags.
- Remove the lockout/tagout device(s) and energize the equipment.

10.0 FOCUS FIVE TOPIC 3 – MANUAL MATERIAL HANDLING AND LIFTING

All materials shall be properly stacked and secured to prevent sliding, falling, or collapse. Aisles, steps, and walkways shall be kept clear for the safe movement of employees and equipment. Storage areas shall be kept free of materials that present hazards such as tripping, fire, and blocked emergency exits and walkways.

Prior to manually lifting or moving materials, assess the lift to determine if assistance is needed. Considerations to determine if assistance is needed include:

- Object weight
- Size and shape
- Hand holds
- Path of travel (from where/to where)
- Personal physical ability

Use proper lifting techniques when handling materials:

- Establish good footing before attempting to lift.
- Do not lean over. Keep your back straight.
- Bend at the knees and not at the waist.
- Bend your knees and get down close to the load.
- Use your legs when lifting.
- Avoid overhead lifting and twisting.
- Whenever possible use mechanical aids to reduce the amount of lifting (pallet jack/carts/forklift/wheelbarrow).

11.0 FOCUS FIVE TOPIC 4 – CRANES, HOISTS AND RIGGING SAFETY

All SBA Team Members and contractors shall be informed of the existence and associated hazards posed by work activities involving cranes, hoists, and rigging through the Pre-Work Assessment/JSA.

11.1 Cranes, Hoists, Boom Trucks

- All crane operators shall be trained and certified.
- Crane must be inspected annually, and supporting documentation must be maintained onsite.
- Crane operator must perform a documented daily visual inspection.
- Any deficiencies noted during the inspection shall be properly addressed prior to crane operations.
- A 10lb/4.5kg ABC fire extinguisher must be present at the operator's station.
- A crane-specific load chart must be maintained in the cab of the crane.
- Boom angle indicator must be visible from operator's station.
- A qualified rigger and/or signal person must be available onsite for lifting operations.
- Outriggers with rubber-tired cranes must be used. Use of steel plates or solid wood for outrigger cribbing is required.
- Weight of crane must be off the tires.
- Barricade the counterweight swing area.
- Hoist assemblies shall have a positive means of attaching the wire rope to the drum, maintaining a minimum of three wraps of wire rope on the drum, and maintaining wire rope on drum 3 in/7.6cm below top of flange. Hoist assemblies shall be equipped with a primary and secondary brake system that is capable of holding 125% of the hoist lifting capacity.
- Hoist brakes shall be capable of controlling descent of the load and stopping the load (without shock loading).
- Hoist controls shall be easily accessible, clearly marked, be capable to start/stop the load in emergency conditions, and be maintained to operate as designed.
- Hoists that are overloaded or repaired shall be inspected and load tested prior to being returned to service.
- Loads shall not be lifted over personnel nor is work to be performed under suspended loads.
- Tag lines shall be used to control the load.
- Critical lifts – A Critical Lift Permit shall be completed prior to all lifts which if collision, upset, or dropping the load could involve any of the following:
 - Lifting of personnel or over hazardous areas;
 - The load exceeds 75% of the crane capacity as shown on the manufacturer's load charts for the crane configuration to be used; and
 - Lifts utilizing more than one crane (tandem lifts) handling a common load.



11.2 Capstans

- The number of wraps of rope on the capstan drum shall be consistent with the magnitude of the lift load and manufacturer's recommendation.
- The number of wraps on the drum shall be limited to prevent the rope from riding over the end of the drum.
- Precautions shall be taken to prevent entanglement of other lines with the capstan rope.
- A rope splice shall not be in contact with the capstan drum.
- Capstans shall not be used without the use of a foot pedal with positive "off".
- Ropes shall be removed from the drum of the capstans when not in use.
- Capstans shall not be used to raise or lower personnel.
- Tag lines shall be used to control the load.

- Based on load weight, use the same number of wraps on the drum to raise the load or to lower it.
- Heel blocks should be considered during lifting operations based upon the lifting plan.

11.3 Gin Poles

- Only engineered and manufactured gin poles with certified capacity ratings shall be used on any SBA site.
- Gin poles shall be inspected during assembly prior to use on a specific project, after any abnormal occurrence, and annually. Onsite inspections can consist of a visual inspection and be performed by site personnel knowledgeable in use of the gin pole. The annual inspection shall be a more thorough inspection that is documented and performed by a competent person.
- Lubrication of the “rooster head” bearings and pulleys should be performed prior to placing the gin pole into use.
- Tag lines shall be used to control the load.
- Never exceed the rated capacity of the Gin pole.
- Gin poles must be free from corrosion and defects.
- A plan shall be in place to prevent the gin pole from tipping during the jumping process.
- ***Riding gin poles and hoist lines is prohibited at all times.***



11.4 Rigging

- Riggers must receive formal training on basic rigging, configuring a load, and rigging components.
- Signal persons must receive formal training on crane signals and safe lifting practices.
- The design, construction, inspection, maintenance, and operation of slings, shackles, links, blocks, lifting eyes, hooks, and other lifting components shall be in compliance with applicable regulatory and manufacturer requirements.
- All rigging and hoisting components shall be stamped or tagged with appropriate load ratings/capacities. (Examples: Working Load Limit (WLL), Safe Working Load (SWL))
- Any component marked with kilo Newton (kN) (ex: PPE, carabineers, PFAS) may not be used as a rigging device.
- Homemade rigging components are prohibited.
- Rated slings shall be used at all times. Ropes shall not be used in place of slings.
- Workers rigging loads shall inspect all rigging and lifting devices prior to each use.
- If defects are found, the equipment must be taken out of service and tagged “Danger, Do Not Use – Defective” or destroyed.
- Know the weight of the load being lifted and the capacity of the lifting equipment.
- Do not secure or shorten slings by knotting or using bolts.
- Pad or protect slings from sharp edges.
- Loads shall be centered in the lifting component and hooks should never be tip or back loaded.
- Use only hooks with a spring loaded safety latch.
- Use a shackle whenever more than two-choker eyes are placed on a hook and do not exceed a sling to load angle of 30°.

11.5 Synthetic Ropes

Synthetic ropes used for hoisting must have a known Minimum Breaking Strength (MBS) and a de-rated factor for use of 10:1. Ropes used in conjunction with a block/pulley must have a d/D Diameter/diameter) load line to block ratio 6:1.

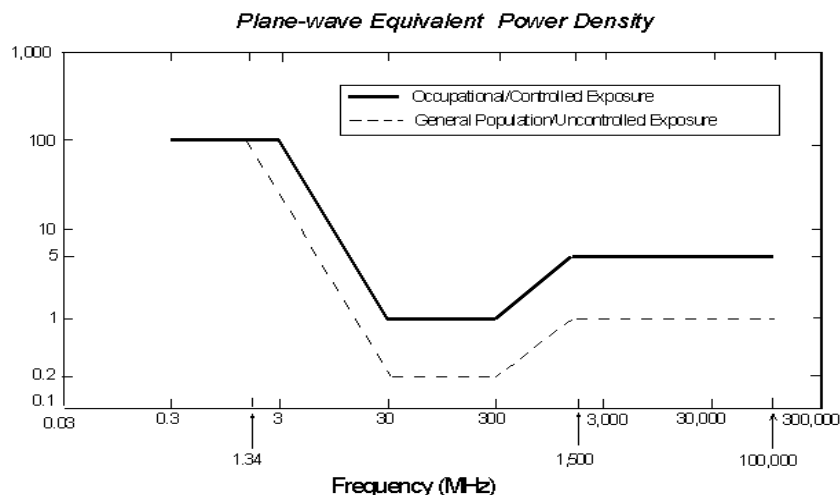
- Rope should be inspected daily prior to each use. Storage and inspection criteria include:
 - Abrasion or fraying
 - Glazing
 - Uniformity of diameter
 - Discoloration
 - Exposed core
 - Age
 - Chemical or UV deterioration.

12.0 FOCUS FIVE TOPIC 5 – ELECTROMAGNETIC ENERGY SAFETY

All SBA Team Members and contractors shall be informed of the existence and associated hazards posed by electromagnetic energy (EME) through training and the Pre-Work Assessment/JSA. EME hazards may exist at communication transmission sites that are active in terms of the potential to emit radio waves (i.e. radio frequency – RF) and all workers must be protected from hazards associated with RF exposure. .

Maximum Permissible Exposure (MPE) – the maximum permissible exposure (MPE) is a maximum level of exposure that is specified by the Federal Communications Commission (FCC). The MPE is based on frequency, as illustrated in Chart 1 below. The occupational/controlled MPE applies in areas where exposure is related to employment duties. The general population/uncontrolled MPE applies to persons assumed to have no knowledge of or control over their potential exposure to EME energy.

Figure 1. FCC Limits for Maximum Permissible Exposure (MPE)



Electromagnetic Energy (EME)/Radio Frequency Energy (RF) – RF is a form of EME used for transmitting radio signals. EME/RF is a type of non-ionizing radiation. Other examples of non-ionizing radiation include laser, radar, microwaves, UHF/VHF AM broadcast, paging systems, and infrared. Damage to the body from EME/RF overexposure is dependent upon time, distance, and shielding from the EME/RF source.

Time-averaging - Maximum permissible exposures are expressed as time-averaged exposures (typically 6 minutes for occupation/controlled MPE). The use of time averaging to regulate total exposure allows an individual to work in an area with higher energy levels for shorter durations.

12.1 Four Criteria for Entering a Controlled RF Environment

- Annual EME/RF safety awareness training
- Site signage
- Site security

- MPE data/RF Monitor

12.2 General Work Practices

- Assume all antennas are active.
- Before working on antennas notify owners and disable appropriate transmitters. Coordination will help ensure that turning off the equipment will not cause serious disruption of the service.
- Maintain safe clearance from all antennas. A small increase in distance from an antenna can have a substantial effect on reducing the EME exposure.
- Do not stop in front of antennas while climbing or working. Workers should always try to keep below or behind antennas to minimize their exposure to the main beam of the antenna.
- Use personal EME monitors while working near antennas. When multiple employees are working at an EME site, the “highest risk” employee (the one who will be working closest to the antennas) should be the one wearing the monitor.
- Never operate transmitters without shields during normal operation.
- Do not operate base station antennas inside equipment rooms.
- Antenna sites must have physical access control. This is accomplished by fencing around the compound.
- When other transmitters are involved, power reduction, lock-out/tag-out, or other control procedures may be necessary.



12.3 Electromagnetic Energy Site Signage

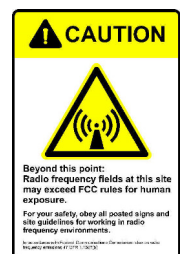
Blue Zone (Notice)

The blue zone is an area where the time-weighted exposure is below 20% of the occupational/controlled MPE. There is no time limit or special work practices required for this zone and only basic EME awareness is needed.



Yellow Zone (Caution)

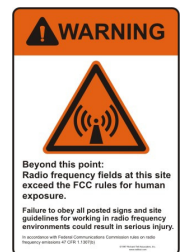
The yellow zone is any area where the time-weighted exposure is between 20% - 100% of the occupational/controlled MPE. In this zone, the energy fields are within acceptable exposure limits; however, areas adjacent may exceed acceptable limits. Only personnel with the appropriate training, knowledge, and understanding of EME procedures should work in this area.



Red Zone (Warning)

The red zone is any area where the time-weighted exposure levels are above 100% of occupational/controlled MPE. Areas determined to require red zone classification require special procedures, engineering controls, and restricted access. Examples of the procedures that may be implemented include:

- Restricted site access;
- Lockout/tagout of transmitter equipment during maintenance;
- Re-engineering site to reduce EME fields; or
- Control of antenna types used on the site.



RF Induced Current/Contact Current (Danger)

RF induced current/contact current exposure exists when the potential for shock or burn from low-frequency EME is present. AM towers and AM-De-tuned towers present the greatest hazard for induced/contact current hazards. Employees shall avoid contact until other protective measures (i.e., reducing power levels, grounding, reduce time and distance) are in place.



12.4 Personal Protective Equipment (for EME/RF)

Particular sites or types of EME/RF hazards may warrant the need for specialized PPE. In this event, the SBA Safety Department will communicate with field supervision for specific PPE selection. Each worker must inspect the PPE to ensure it is in good condition prior to each use.

13.0 EXCAVATIONS AND TRENCHES

All SBA Team Members and contractors shall be informed of associated hazards posed by excavations and trenches through the Pre-Work Assessment/JSA. Excavations on SBA sites include utility trenches and foundations/pier excavations.

If an excavation exceeds 1.5 meters/5 feet in depth and entry is necessary, the Safety Department shall be notified prior to initiating work.

13.1 General Requirements

- Utilities shall be identified by ground locate prior to starting any excavation.
- A designated Excavation Competent Person shall be utilized for excavations exceeding 1.5 meters/5 feet in depth which require entry to ensure proper safety measures are in place to protect workers.
- Trenches 1.5 meters/5 feet or deeper will require proper shoring or sloping based upon soil classification and in reference to geotechnical tables.
- All spoils must be placed a minimum of .5 meters/2 feet from the edge of the excavation.
- Excavations 1.2 meters/4 feet in depth or greater must have a stairway, ladder, ramp, or other safe means of egress within every 7.6 meters/25 feet of lateral travel.
- No employee may enter an excavation exceeding 1.5 meters/5 feet where water has accumulated without water being controlled and excavation reassessed by the Excavation Competent Person.
- Excavations where a hazardous atmosphere may exist shall be tested for potential hazardous atmosphere. These spaces may be classifiable as permit-required confined spaces. The Safety Department will be contacted prior to commencing work in excavations that may contain oxygen deficient or other hazardous atmospheres.
- Reinforcing steel (rebar) used in excavations shall be protected through the use of metal-plated rebar caps or other suitable protection to prevent impalement.
- Excavations left overnight must be protected and secured from unauthorized entry.
- When work is being performed within 1.8 meters/6 feet of an excavation that is greater than 1.8 meters/6 feet in depth to the lower level, the workers shall be protected against falls.
- All equipment shall be inspected prior to use and operated in accordance with manufacturer's recommendations.

13.2 Soil Classifications for Excavations Exceeding 1.5 meters/5 Feet

The Excavation Competent Person must classify the excavation soil accordingly. Soil classification requires two types of testing one visual and one manual.

Stable Rock	Natural solid mineral material that can be excavated with vertical sides and will remain intact while exposed.
Type A Soil	Examples include clay, silty clay, sandy clay, clay loam, and sometimes silty clay loam and sandy clay loam.
Type B Soil	Examples include silt, silt loam, sandy loam, and sometimes silty clay loam.
Type C Soil	Examples include granular soils like gravel, sand, loamy sand, submerged soil, and soil from which water is freely seeping, and submerged rock that is not stable.

13.3 Protective Systems for Excavations Exceeding 1.5 meters/5 Feet

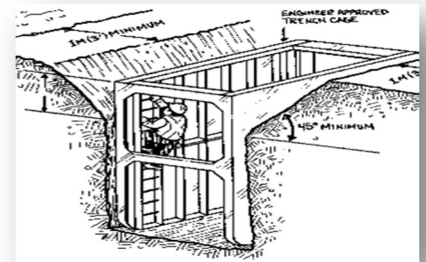
NOTE: Each worker in an excavation exceeding 1.5 meters/5 feet shall be protected from cave-ins by the use of adequate shoring or sloping protective systems.

- Design of excavation support/shield systems and sloping/benching systems shall be configured to account for excavation size, soil integrity, weather conditions, duration of excavation, and access requirements.
- The Excavation Competent Person shall select appropriate protective systems based upon soil classification and in reference with geotechnical tables. Protective systems shall be designed by a qualified person (e.g., professional engineer).

13.4 Inspections of Excavations Exceeding 1.5 meters/5 Feet

All excavations shall be inspected by an Excavation Competent Person daily before entry and:

- At the start of each shift;
- After rain or snowfall;
- After freezing and/or thawing temperatures occur; and
- After any condition that can change the integrity of the soil. (ex: earthquake)



During rainy weather, work in excavations shall cease until the Excavation Competent Person has evaluated the excavation and the effect the rain is having. The Excavation Competent Person will need to maintain a regular inspection schedule during the rain if employees will continue to work in the excavation.

13.5 Employee Information and Training

- Individuals identified as the Excavation Competent Person training specific to the excavation type and associated hazards.
- Each employee who works in or around an excavation greater than 1.5 meters/5 feet shall be trained in the following:
 - General requirements of this program;
 - Fall hazards;
 - Safe entry and exit; and
 - Hazardous atmospheres.

14.0 HAND AND POWER TOOL SAFETY

When hand and power tools are used at height, the user shall prevent the tool from falling to a lower level.

14.1 Power Tools

- Tool manufacturer guards shall remain in place and unaltered.

- Point-of-operation guards may require ongoing adjustment to perform correctly (portable grinders) or may be self-adjusting (circular saw blade guard).
- Electric hand tools shall be double insulated or used with a GFCI.
- All electric hand tools when used in the field shall be plugged into a GFCI receptacle or be equipped with GFCI protection.
- Pneumatic power tools shall be secured to the hose by some positive means (i.e. quick connect).
- Never use air hoses or extension cords for raising or lowering tools and materials to and from the work area.
- All fuel-powered tools shall be in the off position during refueling or while performing maintenance repairs.
- Safety Glasses/Face Shield/Gloves may be required while using power tools.
- Hearing protection is required if sound levels exceed 85 dBA over an 8 hour Time Weighted Average (circular saw, portable grinders, many air powered tools).
- Any tool not in proper working order shall be removed from service.
- All power tools shall be used and maintained per the manufacture requirements.



14.2 Hand Tools

- Use hand tools that are in good condition and intended for the work to be performed. Home-made/job-made tools shall not be used.
- Hammer and sledge handles and heads should be inspected for damage, and swing radius checked for other workers.
- Chisels and punches should be inspected prior to use.
- Wrenches and pliers should be inspected prior to use for cracks, oil/grease, and worn or damaged grips. Wrenches shall not be paired with other tools as a lever or for unintended use.
- Hand saws shall be inspected prior to use for defects and cracked or worn blades. Store saws so that there is no chance for someone to fall onto or bump into their blades.
- Appropriate PPE must be worn when using tools.
- All hand and power tools shall be inspected prior to use for defects, damage, or excessive wear that may present a hazard during use.

15.0 FORKLIFTS

- Prior to operating a forklift, operator must participate in and successfully complete classroom and practical training for forklifts. All operators are expected to operate a forklift in accordance with manufacturer requirements for truck operations, travelling, and loading.
- Forklifts shall be inspected at the start of each shift for proper operation and safe condition.
- Forklift shall not be utilized to lift personnel.

16.0 HOT WORK (CUTTING/WELDING/GRINDING)

All SBA Team Members and contractors shall be informed of the hazards created by hot work (cutting/welding/grinding) through the Pre-Work Assessment/JSA.

SBA hot work includes any spark or heat producing work including torch cutting, arc welding, cad-welding, and grinding tower structure and components. The following guidelines provide the requirements regarding the hazards and safety precautions necessary to reduce the potential for fires and explosions associated with hot work.

16.1 Guidelines for Welding, Cutting, and Spark Producing Work

16.1.1 Hot Work Activities

- Identify material to be welded or cut (carbon steel, galvanization, stainless, etc.).
- Review the hazards associated with the material being welded and cut using the Safety Data Sheets.
- Assess site for flammable and combustible hazards including coax, bird nests, vegetation, buildings, fuel, cardboard, wood, etc.
- Identify the required PPE (eye, face, body, etc.). Use appropriate PPE (i.e., welding hood, cutting goggles, leather gloves) when cutting or welding. Synthetic materials (e.g., polyester) that melt easily should be avoided. Where required, workers must wear appropriate respiratory protection.
- Identify the required tools. When selecting tools, select on the basis of reducing or eliminating heat, sparks, and flames.
- Identify fire prevention equipment/methods and review placement locations.
 - Fire extinguishers (minimum of two fully charged 10 pound ABC extinguishers)
 - Fire blankets
 - SBA Hot Work Policy shall be followed
- Combustibles should be moved at least 10.5 meters/35 feet away from the work area, or preventative fire measures shall be in place.
- Review onsite personnel for proper training in fire prevention and fire watch. A trained Fire Watch shall be assigned whenever hot work is performed. The Fire Watch shall maintain a continuous uninterrupted watch over hot work operations during and for 30 minutes thereafter. Hot work may require multiple fire watches.
- Review certifications for welders, climbers, and site personnel.
- Plan for proper storage and transport of oxygen and fuel cylinders.
- Evaluate the need for additional safety precautions when performing simultaneous hot work activities.
- Develop site-specific Hot Work Plan, must be approved by SBA Safety Department prior to work being performed.

16.1.2 Compressed Gas Cylinders Safety Precautions

- Always store cylinders in an upright position, capped, secured, and protected from being struck.
- Do not store oxygen cylinders within 20 feet of flammable gases.
- Cylinders being transported and stored should have regulators removed and valve protection caps in place.
- All gas fittings and connections should be free from oil, grease, and excess dirt, prior to fitting to the torch or regulator.

17.0 HOUSEKEEPING

During project planning, considerations must be made for proper storage/staging of materials and the adequate disposal of scrap and waste. Assessing the safety and fire hazards associated with poor housekeeping practices and abiding by the following requirements are critical to eliminating worksite fires, incidents, and injuries.

- Bags, containers, bundles, etc., stored in tiers shall be stacked, blocked, interlocked, and limited in height so that they are stable and secure against sliding or collapse.
- Walkways must be maintained with 1 meter/3 foot clearance from all stored material.
- Floors, walkways, stairs, rooftops, and platforms must be kept free of loose items, debris, and greasy, wet, or dirty surfaces.

- Hand tools, construction materials, and debris shall be stabilized and secured from movement when utilized for overhead work on platforms, catwalks, and scaffolds.
- Materials, waste, and debris must be stored in a manner that does not present a fire hazard.
- Open burning of construction debris and waste material is not permitted.
- Electrical cords, ropes, or other similar materials must be routed to minimize the potential for trips and falls.

17.1 Fire Prevention/Protection

- Use approved metal safety cans for storage and dispensing of flammable liquids (i.e., gasoline, kerosene, and diesel fuel).
- If 95 liters/25 gallons or more of flammable liquids are onsite, they must be stored in a flammable storage cabinet when not in use.
- Store flammable materials in a well-ventilated area.
- Portable fire extinguishers shall be accessible within 3 meters/10 feet of flammable liquid storage.
- Areas in which flammable liquids are transferred shall be separated from other operations by 7.5 meters/25 feet distance or by a fire-resistant barrier. Secondary containment or other means of spill capture shall be provided to control leaks and spills. Adequate natural or mechanical ventilation shall be provided.
- Oily or flammable-liquid soaked rags or waste shall be disposed of in labeled metal containers with tight-fitting lids.
- Combustible materials (e.g., wood, paper, coax, and packaging) shall be stored and protected from sources of ignition.
- Storage areas shall be kept free from accumulation of materials that constitute hazards from tripping, fire, and explosion.

18.0 HAZARD COMMUNICATION

- A chemical inventory list and Safety Data Sheets (SDS) shall be maintained and available to workers.
- All containers of hazardous materials must be labeled. It is the responsibility of the worker using the material to ensure that the label is present.
- Labels for a hazardous chemical must contain:
 - Manufacturer's name, address, and telephone number
 - Product identifier
 - Signal word
 - Hazard statement(s)
 - Precautionary statement(s)
 - Pictogram(s)
- If labels on original containers are found to be inadequate, illegible, or otherwise unacceptable, the material will be disposed of by an approved chemical disposal contractor.
- All secondary container labels must be completed properly and the label applied before the transfer of the material into the container.
- SDSs for all hazardous material to which employees are or may potentially be exposed will be retained and made readily available to all employees.
- Contractors are required to maintain a chemical inventory for any chemicals with potential exposure affects that are brought onto the jobsite or produced on the jobsite, outside of consumer articles.
- SBA Team Members will receive information and training on existing hazardous substances at the time of initial assignment and whenever a new hazardous substance is introduced into the work area.
- All SBA Team Members must utilize the Global Harmonization System (GHS) label requirements and guidelines as seen below:

SAMPLE LABEL

PRODUCT IDENTIFIER

CODE _____

Product Name _____

SUPPLIER IDENTIFICATION

Company Name _____

Street Address _____

City _____ State _____

Postal Code _____ Country _____

Emergency Phone Number _____

PRECAUTIONARY STATEMENTS

Keep container tightly closed. Store in cool, well ventilated place that is locked.

Keep away from heat/sparks/open flame. No smoking.

Only use non-sparking tools.

Use explosion-proof electrical equipment.

Take precautionary measure against static discharge.

Ground and bond container and receiving equipment.

Do not breathe vapors.

Wear Protective gloves.

Do not eat, drink or smoke when using this product.

Wash hands thoroughly after handling.

Dispose of in accordance with local, regional, national, international regulations as specified.

In Case of Fire: use dry chemical (BC) or Carbon dioxide (CO₂) fire extinguisher to extinguish.

First Aid

If exposed call Poison Center.

If on skin (on hair): Take off immediately any contaminated clothing. Rinse skin with water.

HAZARD PICTOGRAMS



SIGNAL WORD

Danger

HAZARD STATEMENT

**Highly flammable liquid and vapor.
May cause liver and kidney damage.**










SUPPLEMENTAL INFORMATION

Directions for use

Fill weight: _____ Lot Number _____

Gross weight: _____ Fill Date: _____

Expiration Date: _____

GHS Pictograms and Hazard Classes		
		
<ul style="list-style-type: none"> ▪ Oxidizers 	<ul style="list-style-type: none"> ▪ Flammables ▪ Self Reactives ▪ Pyrophorics ▪ Self-Heating ▪ Emits Flammable Gas ▪ Organic Peroxides 	<ul style="list-style-type: none"> ▪ Explosives ▪ Self Reactives ▪ Organic Peroxides
		
<ul style="list-style-type: none"> ▪ Acute toxicity (severe) 	<ul style="list-style-type: none"> ▪ Corrosives 	<ul style="list-style-type: none"> ▪ Gases Under Pressure
		
<ul style="list-style-type: none"> ▪ Carcinogen ▪ Respiratory Sensitizer ▪ Reproductive Toxicity ▪ Target Organ Toxicity ▪ Mutagenicity ▪ Aspiration Toxicity 	<ul style="list-style-type: none"> ▪ Environmental Toxicity 	<ul style="list-style-type: none"> ▪ Irritant ▪ Dermal Sensitizer ▪ Acute Toxicity (harmful) ▪ Narcotic Effects ▪ Respiratory Tract ▪ Irritation

- All contractors and Team Members have the right to know and understand the hazardous chemicals they use and how to work with them safely. Please contact the Safety Department if you want any information on hazardous chemicals and processes.

19.0 CONCRETE WORK

This policy provides the requirements for SBA Team Members and contractors regarding the hazards and safety precautions associated with concrete-related work activities. Relevant concrete work activities include site preparation, concrete form work, ground level slab, pad and pier, caisson, and concrete pumping/pouring and finishing.

Health effects associated with unprotected exposure to concrete and concrete dust:

dermatitis – skin



conjunctivitis – eyes



silicosis – inhalation



Examples of safety precautions include PPE selection, controlled access zones, equipment placement, identifying overhead hazards, and proper form use. Additional concrete work safety precautions include:

- If cutting or grinding concrete, a wet cutting method should be used to prevent exposure to silica dust. If dust masks or respirators are needed refer to Section 7.6 Respiratory Protection in this manual.
- Concrete work PPE includes rubber boots, rubber gloves, apron, safety glasses and face shields, along with long sleeves and long pants.
- If an employee's skin or eyes are exposed to concrete, flush with copious amounts of water.
- All protruding reinforcing steel (rebar, form supports, and stakes) onto and into which employees could fall shall be guarded to eliminate the hazard of impalement. Rebar caps with a top metal plate should be used to prevent impalement.
- Tools used in conjunction with concrete work shall be cleaned of excess concrete from previous work and inspected for defects or damage prior to use.
- All concrete forming equipment (including equipment used in re-shoring operations) shall be inspected prior to erection to determine that the equipment meets the requirements specified in the form work drawings.
- Only qualified operators shall operate concrete pump trucks. Pump trucks contain augers that can catch unsuspecting employees and be explosive in nature if a pipe becomes obstructed.
- Concrete and pump trucks should not setup any closer than a 1.5 to 1 ratio from the bottom of an excavation.

20.0 CONFINED SPACE ENTRY

The confined space policy provides the requirements for SBA Team Members and contractors regarding the guidance for assessment, permitting, entry, and rescue procedures for confined spaces. Potential SBA site confined space work activities include entry into monopoles, water tanks, silos, vaults, and smoke stacks. Requirements for confined space work activities include, but are not limited to, confined space assessment, permitting, air monitoring, ventilation, training, PPE, and rescue/retrieval. It is SBA's policy to prohibit its Team Members from entry into permit-required confined spaces (PRCS) without the written consent of the Safety Department. Contractors shall follow all requirements for all PRCS activities.

When assessing the workspace, the worker must determine the following characteristics to establish whether or not the space is a confined space. Is the space:

1. Large enough and so configured that a person can bodily enter and perform assigned work; and
2. Has limited or restricted means for entry or exit (for example, tanks, vessels, silos, storage bins, hoppers, vaults, and pits are spaces that may have limited means of entry.); and
3. Is not designed for continuous human occupancy.

A non-permit confined space is a confined space that does not contain or, with respect to atmospheric hazards, have the potential to contain, any hazard capable of causing death or serious physical harm.

A PRCS means a confined space that has one or more of the following characteristics in addition to the characteristics listed for confined space:

1. Contains or has a potential to contain a hazardous atmosphere;
2. Contains a material that has the potential for engulfing an entrant;
3. Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross-section; or
4. Contains any other recognized serious safety or health hazard.

PRCS shall be labeled or posted by danger signs or by any other equally effective means. All entry into a PRCS must be performed by trained personnel only. Contractors shall ensure that training requirement are met by all confined space entrants, attendants, supervisors, and rescuers.

21.0 TEMPERATURE EXTREMES

21.1 Heat Stress Symptoms and Treatment

Working in hot environments can cause several different types of health problems. The symptoms and recommended treatment measures are outlined in the table below.

Condition	Symptoms	Treatment
Heat Rash	<ul style="list-style-type: none"> • Reddened, sensitive rash, usually located under arms, between legs, or around the waist 	<ul style="list-style-type: none"> • Keep area clean • Stress personal hygiene • Change into clean shirt and/or underwear at mid-shift
Heat Exhaustion	<ul style="list-style-type: none"> • Flushed or reddened complexion • Slightly elevated body temperature • Profuse sweating • Nausea • Light-headedness • Increased pulse rate 	<ul style="list-style-type: none"> • Rest in a cool, shaded area • Replenish fluids and electrolytes • Do not return to work until pulse and temperature return to normal and nausea subsides
Heat Stroke	<ul style="list-style-type: none"> • Reddened complexion • Absence of perspiration • Elevated body temperature (above 105 F/40.5 C) • Nausea • Unconsciousness 	<ul style="list-style-type: none"> • Move victim to cool shaded area • Remove any PPE or heavy clothing (coveralls, welding gear, etc.) • Douse victim with cool water • Force liquids if conscious • Notify emergency medical services • Note: These responses must be implemented immediately. Heat stroke is a life-threatening condition.

21.2 Heat Stress Prevention

The elements of this section shall be implemented when working in warm climates. These elements are designed to minimize the potential for heat-related health complications. While

these efforts have proven to be beneficial, their implementation cannot guarantee that workers will not suffer from heat stress.

21.2.1 Fluid Replenishment

- An ample supply of potable water shall be provided at the worksite.
- Water shall be maintained at a cool temperature, preferably between 40-60° F (4-15° C).
- Workers should be encouraged to consume between 250-500ml / 8-16oz of water at every break.
- A supply of electrolyte enhanced fluids (e.g. Gatorade) can be maintained at the jobsite in addition to the potable water. Workers can consume between 250-500ml / 8-16oz of these fluids per day.

21.2.2 Breaks

- Breaks should be taken at regular intervals in a cool, shaded location. As temperatures increase, the number of breaks should increase also.
- Workers should immediately take a break if any of the symptoms of heat stress outlined in Section 21.1 are exhibited.

21.2.3 Miscellaneous Preventive Techniques

- Workers may opt to use personal cooling devices, such as cold packs and cooling vests.
- Portable misting fans may be used during long periods of high temperatures.
- Wetting shirts or headbands may provide relief in very high temperatures.
- Workers should be advised to minimize or eliminate the use of alcoholic beverages during off-hours due to the diuretic effects of alcohol.

21.3 Heat Stress Monitoring

In addition to conducting visual observations of workers for signs of heat stress, the following steps should be taken to measure the potential ill effects of heat exposure. If a worker exhibits any of the following symptoms, the treatment measures listed in Section 21.1 should be implemented.

- The worker's pulse rate is sustained for 3-4 minutes at a rate of 180 beats per minute (bpm) minus the worker's age.
- The worker's pulse rate is greater than 110 bpm one minute after a peak work effort.
- The worker has a core body temperature greater than 100.4° F (38° C).

21.4 Cold Stress Symptoms and Treatment

This section addresses the hazards and control measures associated with performing work in cold conditions. The potential for cold stress is measured by a combination of ambient temperature, air movement, and the type of work being performed. The two primary types of cold stress are hypothermia and frostbite.

Condition	Symptoms	Treatment
Hypothermia	<ul style="list-style-type: none">• Shivering• Pain in extremities• Reduced mental alertness• Core body temperature below 96.8° F (36° C)	<ul style="list-style-type: none">• Move the victim to a warm area• Remove any wet or damp clothing• Provide warm liquids that do not contain caffeine
Frostbite	<ul style="list-style-type: none">• Numbness or tingling of extremities (fingers, toes, ears, nose)	<ul style="list-style-type: none">• Move victim to a warm area

	<ul style="list-style-type: none"> • Discoloration of extremities due to formation of ice crystals under the skin 	<ul style="list-style-type: none"> • Warm affected extremities by direct exposure to a warming device or immersion in cool to warm water <p><i>Note: Do not apply forceful pressure to areas that have become discolored.</i></p>
--	--	---

21.5 Cold Stress Prevention

The following controls shall be implemented when ambient or equivalent chill temperature (ECT) temperature reaches the identified levels:

21.5.1 Below 40° F (4° C)

- Workers should wear layered clothing appropriate for the level of cold and physical activity.
- If working in windy and/or damp conditions, the outer layer of clothing should be designed to resist wind and/or be impermeable to moisture.
- Gloves should be worn.
- Provisions for warming the hands (warm-air jets, radiant heaters) should be provided if fine work without gloves is to be performed.

21.5.2 ECT Below 20° F (-7° C)

- Warming locations with proper ventilation should be provided.
- Employees should be encouraged to use the warming locations as necessary.
- At the onset of shivering, minor frostbite, drowsiness, or euphoria, workers should immediately return to the warming location.
- Upon entering the shelter, the outer layer of clothing should be removed and inner layers should be loosened to permit sweat evaporation.
- Warm, sweet drinks should be provided.
- The intake of coffee should be limited due to the diuretic and circulatory effects.

21.5.3 ECT Below 10° F (-12° C)

- Workers should be under constant observation (Buddy System or Supervisor).
- Work rate should not be so high as to cause heavy sweating.
- Sitting or standing still should be minimized.

21.5.4 ECT Below -30° F (-35° C)

- Skin exposure should not be allowed.

21.5.5 ECT Below -50° F (-45° C)

- All non-emergency work must cease.

21.6 Employee Education and Training

SBA Team Members and contractors should receive instruction designed to increase their awareness and understanding of the hazards of performing work in temperature extremes. The contents of this program should be explained to all workers prior to engaging in work performed under temperature extremes.