

# National Wireless Training Standard

Skills Based Training Subcommittee

In Collaboration with  
Wireless Industry Safety Task Force



and

National Association of Tower Erectors (NATE)



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**DEFINITION OF JOB CLASSIFICATIONS****Helper/Ground Worker**

A Helper/Ground Worker is inexperienced in tower work and has not completed Authorized Climber (Fall Protection) certification training. This individual performs only non-climbing duties and is in a trainee status until completing Authorized Climber training and being deemed ready to work at heights by an authorized authority.

**Ground Technician**

A Ground Technician is proficient in ground, civil, maintenance, or other technical functions on a jobsite. He or she is able to work on equipment being used to support tower construction or maintenance operations.

**Elevated Tower Technician I**

An Elevated Tower Technician I has the physical and mental abilities, required personal protection equipment (PPE), and training to be an Authorized Climber and to climb under the supervision of a Competent Climber. He or she has received appropriate training in fall protection regulations and company safety requirements.

**Elevated Tower Technician II**

An Elevated Tower Technician II has the physical and mental abilities, required PPE, and training to be a Competent Climber, and has the valid certification and experience to climb. This individual is knowledgeable on applicable fall protection regulations, standards, equipment and systems, physical sciences, engineering principals, and mandatory requirements for fall protection equipment. He or she has received appropriate training in rescue procedures and company safety requirements. He or she has the employer's authority to take prompt and corrective action to eliminate any identified hazards or shut the project down until such time that the hazard has been mitigated.

**Lead/Foreman Tower Worker**

A Lead/Foreman Tower Worker has the training, knowledge, and experience to climb; has demonstrated the physical ability to climb; has actual tower experience; is trained in fall protection regulations, including the equipment that applies to tower work; and is capable of identifying existing and potential fall hazards and the implementation, supervision, and monitoring of the company's fall protection rescue program. He or she shall be considered a Competent Climber and Competent Tower Rescuer and shall be granted authority to take prompt corrective action to eliminate and control those hazards. He or she has received the appropriate training in fall protection regulations, rescue procedures, and company safety requirements. This individual has the employer's authority to take prompt and corrective action to eliminate any identified hazards or shut the project down until such time that the hazard has been mitigated.

## 1.0 Summary of Competencies

### SKILL LEVEL

**1** – Familiar with the Competency

**2** – Working Knowledge of the Competency

**3** – Subject Matter Expert of the Competency

Skill Category	Minimum Competencies	Helper/Ground Worker	Ground Technician	Elevated Tower Technician I	Elevated Tower Technician II	Lead/Foreman Tower Worker
Management & Leadership Skills	Budgeting			1	2	3
	Cell Site Components	1	3	2	3	3
	Pre-Job Planning		1	1	2	3
	Soft Skills (Interpersonal Skills)	1	1	1	2	3
Administrative Skills	Daily Forms, Site Safety, Tailgate Meeting Forms, etc.		2	2	2	3
	Layout, Assembly, and Stacking Structures		2	2	2	3
	Materials Familiarization	2	2	2	2	3
	Truck, Trailer, and Equipment Operation	2	3	2	2	3
	Blueprint Orientation		3	2	3	3
	Materials and Return Process		1	1	2	3
Technical Skills	Antenna Mounting, Installation, and Maintenance	1		1	2	3
	Man-Rated Base Mounted Hoists Used for Personnel Lifting			2	3	3
	Basic Crane Signals, Winch Signals, and Operations	1	1	2	3	3
	Battery Removal and Handling Hazards	1	1	2	2	3
	CAD Welding Basics	1	3	1	2	3
	Capstan Hoist Orientation and Inspection	1	3	3	3	3
	Connectors and Cables	3	3	3	3	3
	Rigging	1	2	3	3	3
	General Assembly and Installation of Microwave Dishes	1		1	2	3
	Hoisting Grip	3		3	3	3
	Grounding	1		3	3	3
	Base Mounted Hoists	1		2	3	3
	Loads Affecting Rigging Structural Capacity			2	3	3
	Microwave Path Alignment			1	2	3
	Ropes and Knots	3	3	3	3	3
	Installation, Repair, and Troubleshooting of Coaxial and Elliptical Components			1	2	3
	Installation, Repair, and Troubleshooting of Tower Lighting Systems			1	2	3
	Weatherproofing Installation, Removal, and Replacement	2	3	2	3	3
	Jumper Support and Spacing	1	2	3	3	3
	Phase Taping/Color Coding		2	2	3	3

Skill Category	Minimum Competencies	Helper/ Ground Worker	Ground Technician	Elevated Tower Technician I	Elevated Tower Technician II	Lead/ Foreman Tower Worker
Safety Skills	Authorized Climber (Fall Protection)			3		
	Competent Climber (Fall Protection)			1	3	3
	Safety Climb Facilities			3	3	3
	Crane Operation Safety	1	2	1	2	3
	Department of Transportation (DOT) or Safe Driver Training	2	2	3	3	3
	Electrical Safety	1	3	3	3	3
	Competent Tower Rescuer			1	3	3
	First Aid and CPR Certification	3	3	3	3	3
	Forklift Operation	1	1	1	2	3
	Hazard Communications (HazCom) with Global Harmonized System (GHS)	3	3	3	3	3
	Ladder and Stair Safety	3	3	3	3	3
	Personal Physical Lifting Techniques	3	3	3	3	3
	Aerial Lift Devices and Suspended Personnel Platforms			1	2	3
	OSHA 10-Hour Course		3	3	3	3
	OSHA 30-Hour Course			1	2	3
	Radio Frequency/Electromagnetic Energy (RF/EME)	3	3	3	3	3
	Signalman/Radio Training	2	2	2	2	3
	Tool Familiarization and Operation (Right Tool for the Right Job)	3	3	3	3	3
	Trenching and Shoring		3	1	2	3
	Personal Protective Equipment (PPE) Wear and Use	3	3	3	3	3
	Lockout/Tagout		3	3	3	3
Confined Space Work Procedures	1	2	1	2	3	
Work Zone Safety	3	3	3	3	3	
Other	Welding, Cutting, and Other Hot Work		3	1	1	3
	Gin Poles			1	2	3
	Helicopters			1	1	1
	Jobsite Conditions/Lighting/Housekeeping/Fire Protection	3	3	3	3	3

## 2.0 Helper/Ground Worker

Skill Category	Minimum Competencies	Helper/Ground Worker	Competency Objective or Outcome	Skill Based Requirement	Knowledge Based Requirement
Management & Leadership Skills	Cell Site Components	1	The participant will be able to identify the components of the worksite and the activities being performed.	Verbalize and recognize the hazards from vehicle traffic, proximity to power lines, height of the structure, trip hazards, and other risk assessment elements from the Job Safety Analysis (JSA). Verbalize the location hazard mitigation required at a site.	Recognize the hazards of the worksite and complete a JSA, basic first aid, and location hazard mitigation.
	Soft Skills (Interpersonal Skills)	1	The participant will be able to interact with fellow workers using interpersonal techniques and skills.	Demonstrate, over time and through various interactions with fellow workers, behaviors that promote good interpersonal relationships.	Apply the various interpersonal skills and techniques that can be employed to promote good interpersonal relationships.
Administrative Skills	Materials Familiarization	2	The participant will be able to recognize the client's needs, the site materials being used on the job, and their purpose and application.	Conduct an inventory, identify the equipment being used, and demonstrate the proper care and storage of equipment.	Identify the various types of equipment and materials used for the job.
	Truck, Trailer, and Equipment Operation	2	The participant will have or be able to obtain the appropriate level of state-issued driver license for the equipment being driven.	Demonstrate the safe use and operation of the vehicle or equipment being used.	Complete the required training and certification for the equipment being operated. All training and certifications shall be current.
Technical Skills	Antenna Mounting, Installation, and Maintenance	1	The participant will be able to recognize the equipment being used and be familiar with the layout, subassembly, assembly, and maintenance of equipment.	Demonstrate the ability to follow directions and the assembly of the equipment according to the manufacturers' requirements.	Recognize the correct tools, sequence of assembly, where to find the assembly instructions, and how to read the literature. Know the various manufacturers' specifications for maintenance.
	Basic Crane Signals, Winch Signals, and Operations	1	The participant will be able to recognize crane signals, winch signals, and their operation.	Demonstrate the basic hand signals for the equipment being used.	Know the correct hand signals for the operation being performed.
	Battery Removal and Handling Hazards	1	The participant will be able to recognize the battery removal process and handling hazards.	Demonstrate the proper handling of various battery types.	Know the various types of batteries, polarity, safe handling, and hazardous materials procedures.
	CAD Welding Basics	1	The participant will be able to recognize the basic process of CAD welding.	Demonstrate safe access to the equipment location, prepare the materials, and make them ready for the welder.	Know the various types of equipment being used and the application, PPE, and safety procedures.
	Capstan Hoist Orientation and Inspection	1	The participant will be able to recognize the process for the inspection and use of a capstan hoist.	Demonstrate safe access to the equipment location, prepare the equipment, and make it ready for the operator.	Know the various types of equipment being used and the application, PPE, and safety procedures for the capstan.

Skill Category	Minimum Competencies	Helper/ Ground Worker	Competency Objective or Outcome	Skill Based Requirement	Knowledge Based Requirement
Technical Skills (continued)	Connectors and Cables	3	The participant will be able to perform the correct installation and operation of the various connectors and cable/fiber used on the job.	Demonstrate the manufacturers' required method of installation of cables and connectors.	Recognize the various manufacturers' installation requirements for the cables and connectors being used.
	Rigging	1	The participant will be able to recognize the requirements and equipment for rigging operations. The participant will also be able to recognize fall zones and hand signals.	Demonstrate the ability to identify selected rigging equipment and situational awareness to work safely. Recognize the hazards on the job within the work zone.	Be familiar with rigging equipment and techniques used on the job.
	General Assembly and Installation of Microwave Dishes	1	The participant will be able to recognize the equipment being used and be familiar with the layout, subassembly, and assembly of equipment.	Demonstrate the ability to follow directions and assemble the equipment according to the manufacturers' requirements.	Know the correct tools, sequence of assembly, where to find the assembly instructions, and how to read the literature.
	Hoisting Grip	3	The participant will be able to identify the equipment being used and the layout, sub-assembly, and assembly of equipment.	Demonstrate the ability to follow directions and assemble the equipment according to the manufacturers' requirements.	Identify the correct tools, sequence of assembly, where to find the assembly instructions, and how to read the literature.
	Grounding	1	The participant will be able to recognize the equipment being used and the layout, sub-assembly, and assembly of equipment.	Demonstrate and identify the components and alignment of the grounding system according to grounding system drawings. Demonstrate the ability to follow directions and assemble the equipment according to the site-specific drawings.	Identify the correct tools, sequence of assembly, where to find the assembly instructions, and how to read the literature.
	Base Mounted Hoists	1	The participant will be able to identify the inspection and use of a base mounted hoist.	Demonstrate safe access to the equipment location, prepare the equipment, and make it ready for the operator.	Identify the various types of equipment being used and the application, PPE, and safety procedures for the base mounted hoist.
	Ropes and Knots	3	The participant will be able to identify knots and the appropriate application required on the job.	Demonstrate the ability to tie all the knots required by the company. Verbalize the correct use and application of the appropriate knot.	Identify, demonstrate, and explain the application of knots used by the company.
	Weatherproofing Installation, Removal, and Replacement	2	The participant will be able to recognize and have a working knowledge of the equipment being used and be familiar with the layout, subassembly, and assembly of equipment.	Demonstrate the ability to follow directions and assemble the equipment according to the manufacturers' requirements.	Identify the correct tools, sequence of assembly, where to find the assembly instructions, and how to read the literature.
	Jumper Support and Spacing	1	The participant will be able to recognize the equipment being used and the layout, sub-assembly, and assembly of equipment.	Demonstrate the ability to follow directions and assemble the equipment according to the manufacturers' requirements.	Recognize the correct tools, sequence of assembly, where to find the assembly instructions, and how to read the literature.

Skill Category	Minimum Competencies	Helper/ Ground Worker	Competency Objective or Outcome	Skill Based Requirement	Knowledge Based Requirement
Safety Skills	Crane Operation Safety	1	The participant will be able to identify the various roles and responsibilities of the crew members; site preparation; have rigging awareness; and understand regulations, company guidelines, and standards.	Identify the various roles and responsibilities of the crew members, identify the hazards associated with crane operation, and understand how the crane safety plan will minimize the risks on the jobsite.	Know basic crane safety, regulatory requirements, industry best practices, and company operational guidelines and standards.
	DOT or Safe Driver Training	2	The participant will complete, at a minimum, a driver safety program from a recognized training agency. Depending on job requirements, state and federal requirements may apply according to the Federal Motor Carrier Safety Administration (FMCSA).	Demonstrate safe operation of a motor vehicle while working on the job. If the vehicle is under the jurisdiction of the state or federal FMCSA, be able to complete the required documentation and operate the vehicle.	Demonstrate the skill and knowledge required for the safe operation of a motor vehicle.
	Electrical Safety	1	The participant will be able to comprehend the OSHA Electrical safety standards and their application. The participant will be trained in the possible exposure to electrical hazards, such as personal electric shock and arc flash, and how to use extension cords and ground fault circuit interrupters (GFCI).	Demonstrate the safe use of electrical tools, cords, GFCIs, and the application of electrical safety procedures.	Possess a basic understanding of ac and dc electrical safety as it applies to the job.
	First Aid and CPR Certification	3	The participant will be able to perform the basics of first aid and CPR to a level to successfully obtain certification from a recognized organization.	Demonstrate the basics of first aid and CPR to a high enough level to obtain certification from a recognized organization. Understand what is required for a company site safety emergency response.	Know the basics of first aid and CPR. Know what information is required for a company site safety emergency plan.
	Forklift Operation	1	The participant will be able to operate a forklift and any other powered industrial truck used on the jobsite to a high enough level to successfully obtain and maintain certification to operate the equipment from a recognized organization.	Possess enough skill to successfully obtain and maintain certification to operate the equipment from a recognized organization.	Possess knowledge of a forklift or any other powered industrial truck procedures, safety rules, and equipment operation on the jobsite.
	HazCom with GHS	3	The participant will be able to recognize the elements of a Hazard Communication Program and its application and requirements for the use of chemicals in the workplace, safe handling procedures, and methods to minimize exposure.	Read and interpret a Safety Data Sheet (SDS) as it applies to the work. Maintain the SDS and chemical inventory as it applies to the job. Ensure that workers are informed and provided SDSs.	Comprehend the Hazard Communication and Global Harmonization law and how to apply the statutory requirements to the job functions.
	Ladder and Stair Safety	3	The participant will be able to use ladders safely on the job and be able to inspect all the ladders used by the company in the course of employment.	Demonstrate the correct and safe use of a fixed, step, stair, or extension ladder. Inspect the condition of the ladder and use it only if it is safe for the job.	Know the general safety precautions for preventing ladder accidents; know how to conduct ladder inspections; and know the proper use of the ladders used on the job.

Skill Category	Minimum Competencies	Helper/ Ground Worker	Competency Objective or Outcome	Skill Based Requirement	Knowledge Based Requirement
Safety Skills (continued)	Personal Physical Lifting Techniques	3	The participant will be able to identify the causes and the prevention of injuries related to awkward postures, as well as sprains and strains of the back. This includes the basic ergonomic principals for injury prevention, correct lifting and turning methods, and equipment available to prevent such injuries.	Perform a variety of tasks while elevated above the ground. Tasks typically require the use of hand tools while the worker is positioned in a precarious position on a ladder or a tower. Tools and supplies may weigh up to 50 pounds and are often lifted from the ground to the elevated work area using a rope or a tool bag attached to a rope. This type of work may be performed at one location for an extended period of time or may be repeated at multiple locations throughout the workday.	Practice and apply basic ergonomic principals for injury prevention, correct climbing, lifting, and turning methods and how to use available equipment to prevent such injuries.
	Radio Frequency/Electromagnetic Energy (RF/EME)	3	The participant will be able to comprehend the RF radiation exposure limits levels in excess of the general population/uncontrolled maximum permissible exposure (MPE) limits, as stated in the Federal Communication Commission (FCC), 47 CFR 1.1310, Radiofrequency radiation exposure limits.	Apply the RF radiation exposure limits levels in excess of the general population/uncontrolled MPE limits. Understand RF radiation, the impact on the body, and how to measure the RF exposure and interpret the results.	Understand the RF radiation exposure limits levels, general population/uncontrolled MPE limits, and how to monitor and interpret the readings.
	Signalman/Radio Training	2	The participant will be able to demonstrate a working level of hand signals and radio protocols in accordance with OSHA 1926.1400, Subpart CC, Cranes and Derricks in Construction. The participant will also be able to demonstrate the hand signals and radio protocols used within the company.	Demonstrate a working level of hand signals and radio protocols stated in accordance with the OSHA Cranes and Derricks regulations.	Know the content of the OSHA Cranes and Derricks regulations regarding hand signals and radio protocols, as well as the hand signals and radio protocols used within the company.
	Tool Familiarization and Operation (Right Tool for the Right Job)	3	The participant will be able to recognize the right tool that is designated by the manufacturer for tightening and torque equipment, how to torque, and where to find the information for the various equipment or clients.	Demonstrate the use of available tools and which tool is used for each piece of equipment.	Know the right tool and the torque information that each piece of equipment requires.
	PPE Wear and Use	3	The participant will be able to identify the priorities that should be followed to mitigate or control hazards at the source or in the work environment. The participant will be able to evaluate, select, and identify the appropriate PPE for the protection of workers, and the training requirements for each type of PPE used on the job to be in compliance with applicable laws.	Demonstrate the correct use of all types of PPE used on the worksite. Be able to conduct a PPE evaluation, select the applicable PPE, and the training for the inspection, testing, and maintenance for each type of PPE used on the job.	Know how to evaluate, select, and identify the appropriate PPE for the protection of workers, and the training requirements for each type of PPE used on the job to be in compliance with applicable laws.

Skill Category	Minimum Competencies	Helper/ Ground Worker	Competency Objective or Outcome	Skill Based Requirement	Knowledge Based Requirement
Safety Skills (continued)	Confined Space Work Procedures	1	The participant will be able to understand the OSHA requirements for safe entry into a confined space. This will include the use of confined space equipment, the requirements for permit and non-permit confined spaces, and when and how to use an entry permit. The participant will also recognize the responsibilities of authorized entrants, attendants, and the Supervisor; and be able to identify the requirements and procedures to be used for a rescue.	Be familiar with the use of confined space equipment and requirements; know how to complete a permit for a confined space and when to use an entry permit. Know the responsibilities of authorized entrants and attendants, and be able to demonstrate the procedures and equipment to be used for rescue.	Apply OSHA requirements for safe entry into a confined space to typical work applications, including the use of confined space equipment, the requirements for permit and non-permit confined spaces, and when and how to use an entry permit. Know the responsibilities of authorized entrants and attendants, and be able to demonstrate how to conduct a rescue.
	Work Zone Safety	3	The participant will be able to comprehend the traffic control requirements to work on or near a roadway according to the requirements from the Manual on Uniform Traffic Control Devices (MUTCD), as well as state, county, and city traffic control requirements.	Apply employee safety requirements and traffic control requirements to set up a work zone, what equipment would be required, and how to execute a short-term traffic control work zone.	Know the employee safety and traffic control requirements and state, county, and city standards required for a short-term work zone. Know what equipment is required and how to use equipment according to the permit or work zone configuration.
Other	Jobsite Conditions/ Lighting/ Housekeeping/ Fire Protection	3	The participant will be able to conduct a site safety and emergency plan and site survey. The participant will be aware of the ongoing site conditions and housekeeping, and be aware of actions that are required to mitigate unsafe conditions found on the jobsite. The participant will also understand the minimum level of fire protection required, as well as what training is required for the level of fire protection on the jobsite.	Conduct a site safety and emergency plan and site survey. Be aware of the ongoing site conditions and housekeeping, and possess the skills required to mitigate unsafe conditions found on the jobsite.	Know how to develop a site safety and emergency plan and understand all of the company elements required in the plan. Know the minimum level of fire protection required, as well as what training is required for the level of fire protection on the jobsite.

### 3.0 Ground Technician

Skill Category	Minimum Competencies	Ground Technician	Competency Objective or Outcome	Skill Based Requirement	Knowledge Based Requirement
Management & Leadership Skills	Cell Site Components	3	The participant will be able to identify and describe the activities for a worksite and the activities being performed.	Verbalize and recognize the hazards from vehicle traffic, proximity to power lines, height of the structure, trip hazards, and other risk assessment elements from the Job Safety Analysis (JSA). Verbalize the location hazard mitigation required at a site.	Recognize the hazards of the worksite and complete a JSA, basic first aid, and location hazard mitigation.
	Pre-Job Planning	1	The participant will be able to identify the prework activities for a worksite, the activities being performed, and what is needed prior to the site work. The preplanning would include, but not be limited to, the completion of a site-specific emergency action plan and a JSA for each jobsite.	Recognize company pre-work requirements and verbalize and recognize potential jobsite hazards, develop a site-specific JSA and a site-specific emergency action plan.	Understand how to complete all of the basic and company requirements, complete a JSA, and a site-specific emergency action plan.
	Soft Skills (Interpersonal Skills)	1	The participant will be able to interact with fellow workers using interpersonal techniques and skills.	Demonstrate, over time and through various interactions with fellow workers, behaviors that promote good interpersonal relationships.	Apply the various interpersonal skills and techniques that can be employed to promote good interpersonal relationships.
Administrative Skills	Daily Forms, Site Safety, Tailgate Meeting Forms, etc.	2	The participant will be able to recognize the requirements for site authorization, security, job hazard analysis, pre-job job safety meetings, JSA, as well as the documentation of the build during the day. He or she will be able to clearly detail the progress of the job, complete any company forms or required documentation, as well as opening and closing required documentation and procedures.	Complete the forms electronically, manually, or as requested by the client or company.	Use a computer to accurately complete company and client documentation that is required for the job.
	Layout, Assembly, and Stacking Structures	2	The participant will be able to read construction drawings; plan all of the elements of the construction; identify material by type, size, and quantity; and inventory, as well as understand the sequence of assembly of the structure. He or she must be able to develop a rigging and erection plan and understand the various skill sets required of the team for the construction of the structure.	Read construction drawings; plan all of the elements of the construction; identify material by type, size, and quantity; inventory, as well as understand the sequence of assembly of the structure. Develop a rigging and erection plan and distinguish the various skill sets required of the team for the construction of the structure.	Read construction drawings and manufacturers' sequence of assembly. Possess the knowledge, skills, and ability to comply with company and client expectations. Identify the appropriate materials and equipment to complete the rigging plan.

Skill Category	Minimum Competencies	Ground Technician	Competency Objective or Outcome	Skill Based Requirement	Knowledge Based Requirement
Administrative Skills (continued)	Materials Familiarization	2	The participant will be able to recognize the client's needs, the site materials being used on the job, and their purpose and application.	Conduct an inventory, identify the equipment being used, and demonstrate the proper care and storage of equipment.	Identify the various types of equipment and materials used for the job.
	Truck, Trailer, and Equipment Operation	3	The participant will have or be able to obtain the appropriate level of state-issued driver license for the equipment being driven.	Demonstrate the safe use and operation of the vehicle or equipment being used.	Complete the required training and certification for the equipment being operated. All training and certifications shall be current.
	Blueprint Orientation	3	The participant will be able to orient, read, and interpret blueprints and basic common engineering and architectural symbols used on the plans.	Demonstrate how to read blueprints, recognize symbols, and understand the relationship of the various views and pages to be successful.	Orient, read, and interpret blueprints and basic common engineering and architectural symbols used on the plans.
	Materials and Return Process	1	The participant will be able to use proper procedures and protocols to manage materials and the process required for returns.	Demonstrate the ability to prepare materials and paperwork to return to the manufacturer/supplier.	Know the proper procedures for cost accounting and recognize the appropriate paperwork to maintain company financial controls.
Technical Skills	Basic Crane Signals, Winch Signals, and Operations	1	The participant will be able to recognize crane signals, winch signals, and their operation.	Demonstrate the basic hand signals for the equipment being used.	Know the correct hand signals for the operation being performed.
	Battery Removal and Handling Hazards	1	The participant will be able to recognize the battery removal process and handling hazards.	Demonstrate the proper handling of various battery types.	Know the various types of batteries, polarity, safe handling, and hazardous materials procedures.
	CAD Welding Basics	3	The participant will be able to identify the basic process of CAD welding.	Demonstrate safe access to the equipment location, prepare the materials, and make them ready for the welder.	Identify the various types of equipment being used and the application, PPE, and safety procedures.
	Capstan Hoist Orientation and Inspection	3	The participant will be able to identify the process for the inspection and use of a capstan hoist.	Demonstrate safe access to the equipment location, prepare the equipment, and make it ready for the operator.	Identify the various types of equipment being used and the application, PPE, and safety procedures for the capstan.
	Connectors and Cables	3	The participant will be able to identify the correct installation method and operation of the various connectors and cable/fiber used on the job.	Demonstrate the manufacturers' required method of installation of cables and connectors.	Identify the various manufacturers' installation requirements for the cables and connectors being used.
	Rigging	2	The participant will be able to recognize the requirements and equipment for rigging operations and recognize fall zones and hand signals.	Demonstrate the ability to identify selected rigging equipment and situational awareness needed to work safely. Recognize the hazards on the job within the work zone.	Recognize rigging equipment and techniques used on the job.
	Ropes and Knots	3	The participant will be able to identify knots and the appropriate application required on the job.	Demonstrate the ability to tie all the knots required by the company. Verbalize the correct use and application of the appropriate knot.	Identify, demonstrate, and explain the application of knots used by the company.

Skill Category	Minimum Competencies	Ground Technician	Competency Objective or Outcome	Skill Based Requirement	Knowledge Based Requirement
Technical Skills (continued)	Weatherproofing Installation, Removal, and Replacement	3	The participant will be able to identify and have an expert knowledge of the equipment being used and the layout, subassembly, and assembly of equipment.	Demonstrate the ability to follow directions and assemble the equipment according to the manufacturers' requirements.	Know the correct tools, sequence of assembly, where to find the assembly instructions, and how to read the literature.
	Jumper Support and Spacing	2	The participant will be able to identify the equipment being used and the layout, sub-assembly, and assembly of equipment.	Demonstrate the ability to follow directions and assemble the equipment according to the manufacturers' requirements.	Know the correct tools, sequence of assembly, where to find the assembly instructions, and how to read the literature.
	Phase Taping/ Color Coding	2	The participant will be able to identify and possess a working knowledge of the process required to properly install the tape and color coding without tension on the final three wraps.	Demonstrate the ability to identify the proper color tape and apply the tape without tension on the final three wraps.	Demonstrate the ability to identify the proper color tape and apply the tape without tension on the final three wraps, according to the client requirements or project drawings.
Safety Skills	Crane Operation Safety	2	The participant will be able to identify the various roles and responsibilities of the crew members; site preparation; rigging awareness; and understand regulations, company guidelines, and standards.	Identify the various roles and responsibilities of the crew members, identify the hazards associated with crane operation, and understand how the crane safety plan will minimize the risks on the jobsite.	Know basic crane safety, regulatory requirements, industry best practices, and company operational guidelines and standards.
	DOT or Safe Driver Training	2	The participant will be able to complete, at a minimum, a driver safety program from a recognized training agency. Depending on job requirements, state and federal requirements may apply according to the Federal Motor Carrier Safety Administration (FMCSA).	Demonstrate safe operation of a motor vehicle while working on the job. If the vehicle is under the jurisdiction of the state or federal FMCSA, be able to complete the required documentation and operate the vehicle.	Demonstrate the skill and knowledge required for the safe operation of a motor vehicle.
	Electrical Safety	3	The participant will be able to comprehend the OSHA Electrical safety standards and their application and be trained in the possible exposure to electrical hazards such as personal electric shock, arc flash, and how to use extension cords, ground fault circuit interrupters (GFCI), etc.	Demonstrate the safe use of electrical tools, cords, GFCIs, and apply electrical safety procedures.	Possess a basic understanding of ac and dc electrical safety as it applies to the job.
	First Aid and CPR Certification	3	The participant will be able to perform the basics of first aid and CPR well enough to successfully obtain certification from a recognized organization.	Demonstrate the basics of first aid and CPR to a high enough level to obtain a certification from a recognized organization. Understand what is required for a company site safety emergency response.	Know the basics of first aid and CPR. Know what information is required for a company site safety emergency plan.

Skill Category	Minimum Competencies	Ground Technician	Competency Objective or Outcome	Skill Based Requirement	Knowledge Based Requirement
Safety Skills (continued)	Forklift Operation	1	The participant will be able to operate a forklift and any other powered industrial truck used on the jobsite to a level high enough to successfully obtain and maintain certification from a recognized organization.	Obtain and maintain equipment certification from a recognized organization.	Know forklift or any other powered industrial truck procedures, safety rules, and equipment operation used on the jobsite.
	HazCom with GHS	3	The participant will be able to identify the elements of a Hazard Communication Program and its application and requirements for the use of chemicals in the workplace, safe handling procedures, and methods to minimize exposure.	Read and interpret a Safety Data Sheet (SDS) as it applies to the work. Maintain the SDS and chemical inventory as it applies to the job. Ensure that employees are informed and provided SDSs.	Know about the Hazard Communication and Global Harmonization law and how to apply the statutory requirements to the job functions.
	Ladder and Stair Safety	3	The participant will be able to use ladders safely on the job and be able to inspect all the ladders used by the company in the course of employment.	Demonstrate the correct and safe use of a fixed, step, stair, or extension ladder. Inspect the condition of the ladder and use it only if it is safe for the job.	Know the general safety precautions for preventing ladder accidents, know how to conduct ladder inspections, and know the proper use of the ladders used on the job.
	Personal Physical Lifting Techniques	3	The participant will be able to identify the causes and the prevention of injuries related to awkward postures, as well as sprains and strains of the back. This includes the basic ergonomic principals for injury prevention, correct lifting and turning methods, and equipment available to prevent such injuries.	Perform a variety of tasks while elevated above the ground. Tasks typically require the use of hand tools while the worker is positioned in a precarious position on a ladder or a tower. Tools and supplies may weigh up to 50 pounds and are often lifted from the ground to the elevated work area using a rope or a tool bag attached to a rope. This type of work may be performed at one location for an extended period of time or may be repeated at multiple locations throughout the workday.	Practice and apply the basic ergonomic principals for injury prevention, correct climbing, lifting and turning methods, and how to use available equipment to prevent such injuries.
	OSHA 10-Hour Course	3	Through this 10-hour training program, entry-level construction workers will be able to recognize information about their rights, employer responsibilities, and how to file a complaint; also how to identify, abate, avoid, and prevent job-related hazards on a construction site.	Since workers are the target audience, these materials emphasize hazard identification, avoidance, and control—not standards. No attempt has been made to treat the 10 topics exhaustively.	Since workers are the target audience, these materials emphasize hazard identification, avoidance, and control—not standards. No attempt has been made to treat the 10 topics exhaustively.

Skill Category	Minimum Competencies	Ground Technician	Competency Objective or Outcome	Skill Based Requirement	Knowledge Based Requirement
Safety Skills (continued)	Radio Frequency/ Electromagnetic Energy (RF/EME)	3	The participant will be able to identify the Radio Frequency (RF) radiation exposure limits levels in excess of the general population/uncontrolled maximum permissible exposure (MPE) limits, as stated in the Federal Communication Commission (FCC), 47 CFR 1.1310, Radiofrequency radiation exposure limits.	Identify RF radiation exposure limits levels in excess of the general population/uncontrolled MPE limits. Understand RF radiation, impact on the body, and how to measure the RF exposure and interpret the results.	Understand the RF radiation exposure limits levels, general population/uncontrolled MPE limits, and how to monitor and interpret the readings.
	Signalman/ Radio Training	2	The participant will be able to demonstrate a working level of hand signals and radio protocols in accordance with OSHA 1926.1400, Subpart CC, Cranes and Derricks in Construction. The participant will also be able to demonstrate the hand signals and radio protocols used within the company.	Demonstrate a working level of hand signals and radio protocols stated in accordance with the OSHA Cranes and Derricks regulations.	Know the content of the OSHA Cranes and Derricks regulations regarding hand signals and radio protocols, as well as the hand signals and radio protocols used within the company.
	Tool Familiarization and Operation (Right Tool for the Right Job)	3	The participant will be able to identify the fundamental principles and use of company tools, understand the preparation, use, and functionality of each tool used on the jobsite, and test for safety.	Demonstrate and safely use the tools required and used in each position.	Possess the knowledge to inspect and safely use each tool.
	Trenching and Shoring	3	The participant will be able to identify the hazards of trenching and excavation, soil classification, the various methods and application of trench protective systems, and when and how to use a combination of shoring and sloping. The participant will be aware of other hazard controls required in the construction of footings and excavations.	Explain and demonstrate the types of soil classification and how to classify the soil. After testing the soil, the appropriate method and application of trench protective systems can be selected. Understand when and how to use a combination of shoring and sloping. Be aware of the hazard controls required in the construction of footings for towers, excavations, or borings.	Understand the state and federal OSHA laws required when conducting trenching and excavation operations. Know soil classification and how to conduct testing. Know the various methods and application of trench protective systems and when and how to use a combination of shoring and sloping. Be aware of other hazards that could impact an excavation and the mitigation controls required.
	PPE Wear and Use	3	The participant will be able to identify the priorities that should be followed to eliminate or control hazards at the source or in the work environment. The participant will be able to evaluate, select, and identify the appropriate PPE for the protection of workers, and the training requirements for each type of PPE used on the job to be in compliance with applicable laws.	Demonstrate the correct use of all types of PPE used on the worksite. Be able to conduct a PPE evaluation, select the applicable PPE, and the training for the inspection, testing, and maintenance for each type of PPE used on the job.	Know how to evaluate, select, and identify the appropriate PPE for the protection of workers, and the training requirements for each type of PPE used on the job to be in compliance with applicable laws.

Skill Category	Minimum Competencies	Ground Technician	Competency Objective or Outcome	Skill Based Requirement	Knowledge Based Requirement
Safety Skills (continued)	Lockout/Tagout	3	The participant will be able to identify all the elements of the company Lockout/Tagout (LOTO) program that establishes procedures for the safe control of energy through locking and tagging of equipment and machinery on the jobsite.	Know how to implement the company written LOTO program for the machinery and equipment used on the job.	Know who is authorized and trained on LOTO on the job and how to apply the program to the machinery and equipment on the job.
	Confined Space Work Procedures	2	The participant will be able to identify and have a working knowledge of the OSHA requirements for safe entry into a confined space. This awareness will include the use of confined space equipment, the requirements for permit and non-permit confined spaces, and when and how to use an entry permit. The participant will also know the responsibilities of authorized entrants, attendants, and the Supervisor; and know the requirements and procedures to be used for a rescue.	Be proficient in the use of confined space equipment and requirements. Know how to complete a permit for a confined space and when to use an entry permit. Know the responsibilities of authorized entrants and attendants, and be able to demonstrate the procedures and equipment to be used for rescue.	Know and apply the OSHA requirements for safe entry into a confined space to typical work applications. Includes the use of confined space equipment, the requirements for permit and non-permit confined spaces, and when and how to use an entry permit. Know the responsibilities of authorized entrants and attendants, and know and be able to demonstrate how to conduct a rescue.
	Work Zone Safety	3	The participant will be able to identify and apply the traffic control requirements to work on or near a roadway according to the requirements from the Manual on Uniform Traffic Control Devices (MUTCD), as well as state, county, and city traffic control requirements.	Know the employee safety and traffic control requirements. Know how to set up a work zone, what equipment would be required, and how to execute a short-term traffic control work zone.	Know the employee safety and traffic control requirements and state, county, and city standards required for a short-term work zone. Know what equipment is required and how to use equipment according to the permit or work zone configuration.
Other	Welding, Cutting, and Other Hot Work	3	The participant will be trained in the type of equipment used by the company and will be able to safely and proficiently demonstrate all of the significant elements of the skills of welding, cutting, and brazing.	Demonstrate a satisfactory competency level with the company welding, cutting, or brazing equipment. Identify, safely use, or understand the requirements for eye protection, ventilation, fire prevention and hot work, and gas and arc welding, including protective clothing required for the job.	Know how to do arc welding, cutting, and gas welding, and apply the safety requirements for each type of work.
	Jobsite Conditions/ Lighting/ Housekeeping/ Fire Protection	3	The participant will be able to conduct a site safety and emergency plan and site survey. The participant will be aware of the ongoing site conditions and housekeeping, and be aware of actions that would be required to mitigate unsafe conditions found on the jobsite. The participant will also understand the minimum level of fire protection required, as well as what training is required for the level of fire protection on the jobsite.	Conduct a site safety and emergency plan and site survey. Be aware of the ongoing site conditions and housekeeping, and possess the skills required to mitigate unsafe conditions found on the jobsite.	Know how to develop a site safety and emergency plan and understand all of the company elements required in the plan. Know the minimum level of fire protection required, as well as what training is required for the level of fire protection on the jobsite.

## 4.0 Elevated Tower Technician I

Skill Category	Minimum Competencies	Elevated Tower Technician I	Competency Objective or Outcome	Skill Based Requirement	Knowledge Based Requirement
Management & Leadership Skills	Budgeting	1	The participant will be able to identify all of the elements contained in the company budgeting process and the impact various aspects of the position must contribute to budget development and ongoing efforts to keep each project on budget.	Possess the computer skills to access the budget and input the required information for budgeting or tracking.	Comprehend the company budget process and the significant elements for developing and tracking the budget.
	Cell Site Components	2	The participant will be able to recognize and describe the activities for a worksite and the activities being performed.	Verbalize and recognize the hazards from vehicle traffic, proximity to power lines, height of the structure, trip hazards, and other risk assessment elements from the Job Safety Analysis (JSA). Verbalize the location hazard mitigation required at a site.	Recognize the hazards of the worksite and complete a JSA, perform basic first aid, and location hazard mitigation.
	Pre-Job Planning	1	The participant will be able to identify the prework activities for a worksite, the activities being performed, and what is needed prior to the site work. The preplanning would include, but not be limited to, the completion of a site-specific emergency action plan and a JSA for each jobsite.	Recognize company prework requirements and verbalize and recognize potential jobsite hazards, develop a site-specific JSA and a site-specific emergency action plan.	Understand how to complete all of the basic and company requirements, complete a JSA, and a site-specific emergency action plan.
	Soft Skills (Interpersonal Skills)	1	The participant will be able to interact with fellow workers using interpersonal techniques and skills.	Demonstrate, over time and through various interactions with fellow workers, behaviors that promote good interpersonal relationships.	Apply the various interpersonal skills and techniques that can be employed to promote good interpersonal relationships.
Administrative Skills	Daily Forms, Site Safety, Tailgate Meeting Forms, etc.	2	The participant will be able to recognize the requirements for site authorization, security, job hazard analysis, pre-job job safety meetings, JSA, as well as the documentation of the build during the day. He or she will be able to clearly detail the progress of the job, complete any company forms or required documentation, as well as opening and closing required documentation and procedures.	Complete the forms electronically, manually, or as requested by the client or company.	Use a computer and be able to accurately complete company and client documentation that is required for the job.

Skill Category	Minimum Competencies	Elevated Tower Technician I	Competency Objective or Outcome	Skill Based Requirement	Knowledge Based Requirement
Administrative Skills (continued)	Layout, Assembly, and Stacking Structures	2	The participant will be able to read construction drawings; plan all of the elements of the construction; identify material by type, size, and quantity; and inventory, as well as understand, the sequence of assembly of the structure. He or she must be able to develop a rigging and erection plan and distinguish the various skill sets required of the team for the construction of the structure.	Read construction drawings; plan all of the elements of the construction; identify material by type, size, and quantity; inventory, as well as understand, the sequence of assembly of the structure. Develop a rigging and erection plan and distinguish the various skill sets required of the team for the construction of the structure.	Read construction drawings and manufacturers' sequence of assembly. Possess the knowledge, skills, and ability to comply with company and client expectations. Identify the appropriate materials and equipment to complete the rigging plan.
	Materials Familiarization	2	The participant will be able to recognize the client's needs, site materials being used on the job, and their purpose and application.	Conduct an inventory, identify the various types of equipment being used, and demonstrate proper care and storage.	Identify the various types of equipment and materials used for the job.
	Truck, Trailer, and Equipment Operation	2	The participant will have or be able to obtain the appropriate level of state-issued driver license for the equipment being driven.	Demonstrate the safe use and operation of the vehicle or equipment being used.	Complete the required training and certification for the equipment being operated. All training and certifications shall be current.
	Blueprint Orientation	2	The participant will be able to orient, read, and interpret blueprints and basic common engineering and architectural symbols used on the plans.	Demonstrate how to read blueprints, recognize symbols, and understand the relationship of the various views and pages to be successful.	Orient, read, and understand blueprints and basic common engineering and architectural symbols used on the plans.
	Materials and Return Process	1	The participant will be able to use proper procedures and protocols to manage materials and the process required for returns.	Demonstrate the ability to prepare materials and paperwork to return to the manufacturer/supplier.	Know proper procedures for cost accounting and recognize the appropriate paperwork to maintain company financial controls.
Technical Skills	Antenna Mounting, Installation, and Maintenance	1	The participant will be able to identify the equipment being used and be familiar with the layout, subassembly, assembly, and maintenance of equipment.	Demonstrate the ability to follow directions and assemble the equipment according to the manufacturers' requirements.	Recognize and apply the correct tools, sequence of assembly, know where to find the assembly instructions, and how to read the literature. Recognize various manufacturers' specifications for maintenance.
	Man-Rated Base Mounted Hoists Used for Personnel Lifting	2	The participant will be able to understand the inspection and use a man-rated hoist, and lift personnel according to industry best practices and OSHA compliance directives.	Demonstrate safe access to the equipment location, prepare the equipment, and make it ready for the operator.	Recognize the various types of equipment being used and the application, PPE, industry best safety practices, and OSHA compliance directives.
	Basic Crane Signals, Winch Signals, and Operations	2	The participant will be able to recognize crane signals, winch signals, and their operation.	Demonstrate the basic hand signals for the equipment being used.	Identify correct hand signals for the operation being performed.
	Battery Removal and Handling Hazards	2	The participant will be able to perform battery removal and recognize handling hazards.	Demonstrate the proper handling of various battery types.	Identify the various types of batteries, polarity, safe handling, and the hazardous materials procedures.

Skill Category	Minimum Competencies	Elevated Tower Technician I	Competency Objective or Outcome	Skill Based Requirement	Knowledge Based Requirement
	Technical Skills (continued)	CAD Welding Basics	1	The participant will be able to recognize the basic steps of the CAD welding process.	Demonstrate safe access to the equipment location, prepare the materials, and make them ready for the welder.
Capstan Hoist Orientation and Inspection		3	The participant will be able to identify the process for the inspection and use of a capstan hoist.	Demonstrate safe access to the equipment location, prepare the equipment, and make it ready for the operator.	Identify the various types of equipment being used and the application, PPE, and safety procedures for the capstan.
Connectors and Cables		3	The participant will be able to identify the correct installation method and operation of the various connectors and cable/fiber used on the job.	Demonstrate the manufacturers' required method of installation of cables and connectors.	Identify the various manufacturers' installation requirements for the cables and connectors being used.
Rigging		3	The participant will be able to identify the equipment requirements for rigging operations and identify fall zones and hand signals.	Demonstrate the ability to identify rigging equipment that was selected and situational awareness to work safely; recognize the hazards on the job within the work zone.	Identify rigging equipment and techniques used on the job.
General Assembly and Installation of Microwave Dishes		1	The participant will be able to identify the equipment being used and be familiar with the layout, subassembly, and assembly of equipment.	Demonstrate the ability to follow directions and assemble the equipment according to the manufacturers' requirements.	Recognize and apply the correct tools, sequence of assembly, where to find the assembly instructions, and how to read the literature.
Hoisting Grip		3	The participant will be able to identify the equipment being used and the layout, sub-assembly, and assembly of equipment.	Demonstrate the ability to follow directions and assemble the equipment according to the manufacturers' requirements.	Recognize and apply the correct tools, sequence of assembly, know where to find the assembly instructions, and how to read the literature.
Grounding		3	The participant will be able to identify the equipment being used and the layout, sub-assembly, and assembly of equipment.	Demonstrate and identify the components and alignment of the grounding system according to the drawings for the grounding system; demonstrate the ability to follow directions and assemble the equipment according to the site-specific drawings.	Recognize and apply the correct tools, sequence of assembly, where to find the assembly instructions, and how to read the literature.
Base Mounted Hoists		2	The participant will be able to identify the inspection and use of a base mounted hoist.	Demonstrate safe access to the equipment location, prepare the equipment, and make it ready for the operator.	Recognize and apply the various types of equipment being used and their application, PPE, and safety procedures for the base mounted hoist.
Loads Affecting Rigging Structural Capacity		2	The participant will be able to identify how the rigging impacts the structure dependent upon placement, location, loading, and shock loading.	Demonstrate the ability to place rigging on the tower in a manner consistent with good rigging habits and engineer of record (EOR) approval.	Read the engineer's report and be able to replay sufficient information to the EOR to properly determine if any rigging impacts the structure's stability.
Microwave Path Alignment		1	The participant will be able to identify the equipment being used and be familiar with the layout, subassembly, and assembly of equipment and the theory of path alignment including major and minor lobes (peaks and valleys).	Demonstrate the ability to follow directions and the assembly of the equipment according to the manufacturers' requirements, including the ability to lock-down the dish without impacting path alignment.	Recognize and apply the correct tools and sequence of assembly, where to find the assembly instructions, and how to read the literature including practical application of the required procedures; apply standards and best practices regarding microwave exposure prevention.

Skill Category	Minimum Competencies	Elevated Tower Technician I	Competency Objective or Outcome	Skill Based Requirement	Knowledge Based Requirement
Technical Skills (continued)	Ropes and Knots	3	The participant will be able to identify knots and the appropriate application required on the job.	Demonstrate the ability to tie all of the knots required by the company. Verbalize the correct use and application of the appropriate knot.	Identify, demonstrate, and explain the application of knots used by the company.
	Installation, Repair, and Troubleshooting of Coaxial and Elliptical Components	1	The participant will be able to recognize the components, connectors, and how to isolate and locate faults.	Demonstrate the ability to follow directions and assemble equipment according to the manufacturers' requirements.	Know the correct tools, sequence of assembly, where to find the assembly instructions, and how to read the literature.
	Installation, Repair, and Troubleshooting of Tower Lighting Systems	1	The participant will be able to recognize the components of the tower lighting system and operational requirements, including layout, subassembly, and assembly of electrical equipment.	Demonstrate the ability to isolate and repair the inconsistencies that create lighting system faults; read lighting system drawings and describe the repair process.	Know the correct tools, sequence of assembly, where to find the installation instructions, electrical and other codes, and how to read the literature.
	Weatherproofing Installation, Removal, and Replacement	2	The participant will be able to recognize the equipment being used and the layout, subassembly, and assembly of equipment.	Demonstrate the ability to follow directions and assemble the equipment according to the manufacturers' requirements.	Identify the correct tools, sequence of assembly, where to find the assembly instructions, and how to read the literature.
	Jumper Support and Spacing	3	The participant will be able to identify the equipment being used and the layout, subassembly, and assembly of equipment.	Demonstrate the ability to follow directions and assemble the equipment according to the manufacturers' requirements.	Identify the correct tools, sequence of assembly, where to find the assembly instructions, and how to read the literature.
	Phase Taping/ Color Coding	2	The participant will be able to identify and possess a working knowledge of the process required to properly install the tape and color coding without tension on the final three wraps.	Demonstrate the ability to identify the proper color tape and apply the tape without tension on the final three wraps.	Demonstrate the ability to identify the proper color tape and apply the tape without tension on the final three wraps, according to the client requirements or project drawings.
Safety Skills	Authorized Climber (Fall Protection)	3	An Authorized Climber is an individual with the physical capabilities to climb, who may or may not have previous climbing experience; the participant will be able to apply fall protection regulations, the equipment that applies to communication structure work, and use the equipment properly.	Demonstrate the physical abilities, skills, and knowledge for the position as an Authorized Climber.	Possess the knowledge, the skills, and training required to work safely in conditions that are exposed to a fall hazard.
	Competent Climber (Fall Protection)	1	A Competent Climber has the physical capabilities to climb, but does not have actual tower climbing experience; may be, or is in training to learn fall protection regulations, including the equipment that applies to tower work; the participant will be capable of identifying existing and potential fall hazards; and will have the employer's authority to take prompt corrective action to eliminate those hazards.	Demonstrate the physical abilities, skills, and knowledge of a Competent Climber.	Apply the training, knowledge, skills, and experience required to be a Competent Climber.

Skill Category	Minimum Competencies	Elevated Tower Technician I	Competency Objective or Outcome	Skill Based Requirement	Knowledge Based Requirement
Safety Skills (continued)	Safety Climb Facilities	3	The participant will be able to apply the standards and laws regarding anchorages, attachment points, rope grabs, etc. The participant will be able to inspect, identify, adapt, and safely use all types of climbing facilities encountered on the jobsite.	Inspect, identify, adapt, and safely use all types of climbing facilities encountered on the jobsite.	Understand and know the standards and laws regarding anchorages, attachment points, rope grabs, etc.
	Crane Operation Safety	1	The participant will be able to identify the various roles and responsibilities of the crew members; site preparation, rigging awareness; and understand regulations, company guidelines, and standards.	Identify the various roles and responsibilities of the crew members, hazards associated with crane operation, and understand how the crane safety plan will minimize the risks on the jobsite.	Know basic crane safety, regulatory requirements, industry best practices, and company operational guidelines and standards.
	DOT or Safe Driver Training	3	The participant will be able to complete, at a minimum, a driver safety program from a recognized training agency. Depending on the requirements of the job, state and federal requirements may apply in accordance with the Federal Motor Carrier Safety Administration (FMCSA).	Demonstrate safe operation of a motor vehicle while working on the job. If the vehicle is under the jurisdiction of the state or federal FMCSA, be able to complete the required documentation and operate the affected vehicle.	Exhibit the skill and knowledge required for the safe operation of a motor vehicle.
	Electrical Safety	3	The participant will be able to comprehend the OSHA Electrical Safety Standards and their application and be trained in the possible exposure to electrical hazards such as personal electric shock, arc flash, and how to use extension cords, ground fault circuit interrupters (GFCI), etc.	Demonstrate the safe use of electrical tools, cords, GFCIs, and apply electrical safety procedures.	Possess a basic understanding of ac and dc electrical safety as it applies to the job.
	Competent Tower Rescuer	1	The participant will be able to recognize the standards and laws regarding anchorages, attachment points, rope grabs, etc., and will be able to inspect, identify, adapt, and safely use all types of climbing facilities encountered on the jobsite.	Inspect, identify, adapt, and safely use all types of climbing facilities encountered on the jobsite.	Understand the standards and laws regarding anchorages, attachment points, rope grabs, etc.
	First Aid and CPR Certification	3	The participant will be able to perform the basics of first aid and CPR to successfully obtain certification from a recognized organization.	Demonstrate the basics of first aid and CPR to a level to obtain certification from a recognized organization and understand what is required for a company site safety emergency response.	Know the basics of first aid and CPR and what information is required for a company site safety emergency plan.
	Forklift Operation	1	The participant will be able to operate a forklift and any other powered industrial truck used on the jobsite to a level high enough to successfully obtain and maintain equipment certification from a recognized organization.	Obtain and maintain equipment certification from a recognized organization.	Know forklift or any other powered industrial truck procedures, safety rules, and equipment operation used on the jobsite.

Skill Category	Minimum Competencies	Elevated Tower Technician I	Competency Objective or Outcome	Skill Based Requirement	Knowledge Based Requirement
Safety Skills (continued)	HazCom with GHS	3	The participant will be able to identify the elements of a Hazard Communication Program, its application and requirements for the use of chemicals in the workplace, safe handling procedures, and methods to minimize exposure.	Read and interpret a Safety Data Sheet (SDS) as it applies to the work, maintain the SDS and chemical inventory as it applies to the job, and ensure that employees are informed and provided SDSs.	Know the Hazard Communication and Global Harmonization law and how to apply the statutory requirements to the job functions.
	Ladder and Stair Safety	3	The participant will be able to use ladders safely on the job and will be able to inspect all the ladders used by the company during employment.	Demonstrate the correct and safe use of a fixed, step, stair, or extension ladder. Inspect the condition of the ladder and use it only if it is safe for the job.	Know the general safety precautions for preventing ladder accidents and how to conduct ladder inspections; know the proper use of ladders used on the job.
	Personal Physical Lifting Techniques	3	The participant will be able to identify the causes and the prevention of injuries related to awkward postures, as well as sprains and strains of the back. This includes the basic ergonomic principals for injury prevention, correct lifting and turning methods, and equipment available to prevent such injuries.	Perform a variety of tasks while elevated above the ground. Tasks typically require the use of hand tools while the worker is positioned in a precarious position on a ladder or a tower. Tools and supplies may weigh up to 50 pounds and are often lifted from the ground to the elevated work area using a rope or a tool bag attached to a rope. This type of work may be performed at one location for an extended period of time or may be repeated at multiple locations throughout the workday.	Practice and apply the basic ergonomic principals for injury prevention, correct climbing, lifting and turning methods, and how to use available equipment to prevent such injuries.
	OSHA 10-Hour Course	3	This 10-hour training program is intended to provide entry-level construction workers information about their rights, employer responsibilities, and how to file a complaint; also how to identify, abate, avoid, and prevent job-related hazards on a construction site.	Since workers are the target audience, these materials emphasize hazard identification, avoidance, and control—not standards. No attempt has been made to treat the 10 topics exhaustively.	Since workers are the target audience, these materials emphasize hazard identification, avoidance, and control—not standards. No attempt has been made to treat the 10 topics exhaustively.
	OSHA 30-Hour Course	1	The 30-hour Construction Outreach Training Program is intended to provide a variety of training to workers with some safety responsibility. The participant will be familiar with hazard identification, avoidance, control and prevention, not OSHA standards.	Since workers are the target audience, these materials emphasize hazard identification, avoidance, and control—not standards. No attempt has been made to treat the 10 topics exhaustively.	Since workers are the target audience, these materials emphasize hazard identification, avoidance, and control—not standards. No attempt has been made to treat the 10 topics exhaustively.

Skill Category	Minimum Competencies	Elevated Tower Technician I	Competency Objective or Outcome	Skill Based Requirement	Knowledge Based Requirement
Safety Skills (continued)	Radio Frequency/ Electromagnetic Energy (RF/EME)	3	The participant will be able to identify the Radio Frequency (RF) radiation exposure limits levels in excess of the general population/uncontrolled maximum permissible exposure (MPE) limits, as stated in the Federal Communication Commission (FCC), 47 CFR 1.1310, Radiofrequency radiation exposure limits.	Identify the RF radiation exposure limits levels in excess of the general population/uncontrolled MPE limits. Understand RF radiation, impact on the body, and how to measure the RF exposure and interpret the results.	Understand the RF radiation exposure limits levels, general population/uncontrolled MPE limits, and how to monitor and interpret the readings.
	Signalman/Radio Training	2	The participant will be able to demonstrate a working level of hand signals and radio protocols for OSHA 1926.1400, Subpart CC, Cranes and Derricks in Construction. The participant will also be able to demonstrate the hand signals and radio protocols used within the company.	Demonstrate a working level of hand signals and radio protocols stated in accordance with the OSHA Cranes and Derricks regulations.	Know the content of the OSHA Cranes and Derricks regulations regarding hand signals and radio protocols, as well as the hand signals and radio protocols used within the company.
	Tool Familiarization and Operation (Right Tool for the Right Job)	3	The participant will be able to identify the fundamental principles and use of company tools, understand the preparation, use and functionality of each tool used on the jobsite, and testing for safety.	Demonstrate and safely use the tools required and used in each position.	Possess the knowledge to inspect and safely use each tool.
	Trenching and Shoring	1	The participant will be able to identify the hazards of trenching and excavation, soil classification, the various methods and application of trench protective systems, and when and how to use a combination of shoring and sloping. The participant will be aware of other hazard controls required in the construction of footings and excavations.	Demonstrate the types of soil classification and how to classify the soil. After testing the soil, the appropriate method and application of trench protective systems can be selected. Understand when and how to use a combination of shoring and sloping. Be aware of the hazard controls required in the construction of footings for towers, excavations, or borings.	Understand the state and federal OSHA laws required when conducting trenching and excavation operations. Know soil classification and how to conduct testing. Know the various methods and application of trench protective systems and when and how to use a combination of shoring and sloping. Be aware of other hazards that could impact an excavation and the mitigation controls required.
	PPE Wear and Use	3	The participant will be able to identify the priorities that should be followed to eliminate or control hazards at the source or in the work environment. Be able to evaluate, select, and identify the appropriate PPE for worker protection and the training requirements of each PPE type used on the job to be in compliance with applicable laws.	Demonstrate the correct use of all PPE types used on the worksite. Be able to conduct a PPE evaluation, select an applicable PPE, and train on the inspection, testing, and maintenance for each PPE type used on the job.	Know how to evaluate, select, and identify the appropriate PPE for worker protection, and the training requirements of each PPE type used on the job to be in compliance with applicable laws.

Skill Category	Minimum Competencies	Elevated Tower Technician I	Competency Objective or Outcome	Skill Based Requirement	Knowledge Based Requirement
Safety Skills (continued)	Lockout/Tagout	3	The participant will be able to identify all the elements of the company Lockout/Tagout (LOTO) program that establishes procedures for the safe control of energy through locking and tagging of equipment and machinery on the jobsite.	Know how to implement the company written LOTO program for the machinery and equipment used on the job.	Know who is authorized and trained on LOTO on the job and how to apply the program to the machinery and equipment on the job.
	Confined Space Work Procedures	1	The participant will be able to recognize and be aware of the OSHA requirements for safe entry into a confined space. This awareness will include the use of confined space equipment, the requirements for permit and non-permit confined spaces, and when and how to use an entry permit. The participant will also know the responsibilities of authorized entrants, attendants, and the Supervisor; and know the requirements and procedures to be used for a rescue.	Use confined space equipment and requirements. Know how to complete a permit for a confined space and when to use an entry permit. Know the responsibilities of authorized entrants and attendants, and be able to demonstrate the procedures and equipment to be used for rescue.	Know and be able to apply the OSHA requirements for safe entry into a confined space to typical work applications. This knowledge includes the use of confined space equipment, the requirements for permit and non-permit confined spaces, and when and how to use an entry permit. Know the responsibilities of authorized entrants and attendants, and know and be able to demonstrate how to conduct a rescue.
	Work Zone Safety	3	The participant will be able to identify and apply the traffic control requirements to work on or near a roadway according to the requirements from the Manual on Uniform Traffic Control Devices (MUTCD), as well as state, county, and city traffic control requirements.	Know the employee safety requirements and traffic control requirements. Know how to set up a work zone, what equipment would be required, and how to execute a short-term traffic control work zone.	Know the employee safety and traffic control requirements and state, county, and city standards required for a short-term work zone. Know what equipment is required and how to use equipment according to the permit or work zone configuration.
Other	Welding, Cutting, and Other Hot Work	1	The participant will be trained in the type of equipment used by the company and will be able to safely and proficiently demonstrate all of the significant elements of the skills of welding, cutting, and brazing.	Demonstrate a satisfactory competency level with the company welding, cutting, or brazing equipment. Identify, safely use, or understand the requirements for eye protection, ventilation, fire prevention and hot work, and gas and arc welding, including protective clothing required for the job.	Know how to do arc welding, cutting, and gas welding, and apply the safety requirements for each type of work.
	Gin Poles	1	The participant will be able to recognize and be familiar with the inspection and use of a gin pole; understand the various sizes, types, and limitations of gin poles according to the site-specific needs; and understand ANSI Standard 1019-A.	Demonstrate the safe use of the equipment and make it ready for operation.	Know the various types of equipment being used and the application, PPE, and safety procedures for gin poles. Know the various sizes, types, and limitations of gin poles according to the site-specific needs, and understand ANSI Standard 1019-A.

Skill Category	Minimum Competencies	Elevated Tower Technician I	Competency Objective or Outcome	Skill Based Requirement	Knowledge Based Requirement
Other (continued)	Helicopters	1	The participant will be able to recognize the operations where helicopters would be used in the company, the procedures and protocols for approaching the craft, the position and duties of the signalman, carrying tools, how to rig and sling loads, hearing protection, and other safety procedures according to the specialized use of the helicopter in the company.	Apply skills needed to work around helicopters according to the various operations of the company that would require their use.	Know the procedures and protocols for approaching the craft, the position and duties of the signalman, carrying tools, how to rig and sling loads, hearing protection, and other safety procedures according to the specialized use of the helicopter in the company.
	Jobsite Conditions/ Lighting/ Housekeeping/ Fire Protection	3	The participant will be able to conduct a site safety and emergency plan and site survey. The participant will be aware of the ongoing site conditions and housekeeping, and be aware of actions that are required to mitigate unsafe conditions found on the jobsite. The participant will also understand the minimum level of fire protection required, as well as what training is required for the level of fire protection on the jobsite.	Conduct a site safety and emergency plan and site survey. Be aware of the ongoing site conditions and housekeeping, and possess the skills required to mitigate unsafe conditions found on the jobsite.	Know how to develop a site safety and emergency plan and understand all of the company elements required in the plan. Know the minimum level of fire protection required, as well as what training is required for the level of fire protection on the jobsite.

## 5.0 Elevated Tower Technician II

Skill Category	Minimum Competencies	Elevated Tower Technician II	Competency Objective or Outcome	Skill Based Requirement	Knowledge Based Requirement
Management & Leadership Skills	Budgeting	2	The participant will be able to identify all of the elements contained in the company budgeting process and the impact various aspects of the position must contribute to budget development and ongoing efforts to keep each project on budget.	Possess the computer skills to access the budget and input the required information for budgeting or tracking.	Comprehend the company budget process and the significant elements for developing and tracking the budget.
	Cell Site Components	3	The participant will be able to identify and describe the activities for a worksite and the activities being performed.	Verbalize and recognize the hazards from vehicle traffic, proximity to power lines, height of the structure, trip hazards, and other risk assessment elements from the Job Safety Analysis (JSA). Verbalize the location hazard mitigation required at a site.	Recognize the hazards of the worksite and complete a JSA, perform basic first aid, and location hazard mitigation.
	Pre-Job Planning	2	The participant will be able to identify the prework activities for a worksite, the activities being performed, and what is needed prior to the site work. The preplanning would include, but not be limited to, the completion of a site-specific emergency action plan and a JSA for each jobsite.	Recognize company prework requirements and verbalize and recognize potential jobsite hazards, develop a site-specific JSA and a site-specific emergency action plan.	Understand how to complete all of the basic and company requirements, complete a JSA, and a site-specific emergency action plan.
	Soft Skills (Interpersonal Skills)	2	The participant will be able to apply the interpersonal techniques and skills needed to interact with fellow workers.	Demonstrate, over time and through various interactions with fellow workers, behaviors that promote good interpersonal relationships.	Apply the various interpersonal skills and techniques that can be employed to promote good interpersonal relationships.
Administrative Skills	Daily Forms, Site Safety, Tailgate Meeting Forms, etc.	2	The participant will be able to recognize the requirements for site authorization, security, job hazard analysis, interpersonal skills, safety meetings, JSA, as well as the documentation of the build during the day. He or she must be able to clearly detail the progress of the job, complete any company forms or required documentation, as well as opening and closing required documentation and procedures.	Complete the forms electronically, manually, or as requested by the client or company.	Use a computer and be able to accurately complete company and client documentation that is required for the job.

Skill Category	Minimum Competencies	Elevated Tower Technician II	Competency Objective or Outcome	Skill Based Requirement	Knowledge Based Requirement
Administrative Skills (continued)	Layout, Assembly, and Stacking Structures	2	The participant will be able to read construction drawings; plan all of the elements of the construction; identify material by type, size, and quantity; and inventory, as well as understand, the sequence of assembly of the structure. He or she must be able to develop a rigging and erection plan and distinguish the various skill sets required of the team for the construction of the structure.	Read construction drawings; plan all of the elements of the construction; identify material by type, size, and quantity; inventory, as well as understand, the sequence of assembly of the structure. Develop a rigging and erection plan and distinguish the various skill sets required of the team for the construction of the structure.	Read construction drawings and manufacturers' sequence of assembly. Possess the knowledge, skills, and ability to comply with company and client expectations. Identify the appropriate materials and equipment to complete the rigging plan.
	Materials Familiarization	2	The participant will be able to recognize the client's needs, site materials being used on the job, and their purpose and application.	Conduct an inventory, identify the various types of equipment being used, and demonstrate proper care and storage.	Identify the various types of equipment and materials used for the job.
	Truck, Trailer, and Equipment Operation	2	The participant will have or be able to obtain the appropriate level of state-issued driver license for the equipment being driven.	Demonstrate the safe use and operation of the vehicle or equipment being used.	Complete the required training and certification for the equipment being operated. All training and certifications shall be current.
	Blueprint Orientation	3	The participant will be able to orient, read, and interpret blueprints and basic common engineering and architectural symbols used on the plans.	Demonstrate how to read blueprints, recognize symbols, and understand the relationship of the various views and pages to be successful.	Orient, read, and understand blueprints and basic common engineering and architectural symbols used on the plans.
	Materials and Return Process	2	The participant will be able to perform the proper procedures and protocols to manage materials and the process required for returns.	Demonstrate the ability to prepare materials and paperwork to return to the manufacturer/supplier.	Apply proper procedures for cost accounting and recognize the appropriate paperwork to maintain company financial controls.
Technical Skills	Antenna Mounting, Installation, and Maintenance	2	The participant will be able to identify the equipment being used and the layout, sub-assembly, assembly, and maintenance of equipment.	Demonstrate the ability to follow directions and assemble the equipment according to the manufacturers' requirements.	Recognize and apply the correct tools, sequence of assembly, know where to find the assembly instructions, and how to read the literature. Recognize various manufacturers' specifications for maintenance.
	Man-Rated Base Mounted Hoists Used for Personnel Lifting	3	The participant will be able to understand the inspection and use a man-rated hoist, and lift personnel according to industry best practices and OSHA compliance directives.	Demonstrate safe access to the equipment location, prepare the equipment, and make it ready for the operator.	Recognize the various types of equipment being used and the application, PPE, industry best safety practices, and OSHA compliance directives.
	Basic Crane Signals, Winch Signals, and Operations	3	The participant will be able to recognize crane signals, winch signals, and their operation.	Demonstrate the basic hand signals for the equipment being used.	Identify correct hand signals for the operation being performed.
	Battery Removal and Handling Hazards	2	The participant will be able to perform battery removal and recognize handling hazards.	Demonstrate the proper handling of various battery types.	Identify the various types of batteries, polarity, safe handling, and the hazardous materials procedures.

Skill Category	Minimum Competencies	Elevated Tower Technician II	Competency Objective or Outcome	Skill Based Requirement	Knowledge Based Requirement
Technical Skills (continued)	CAD Welding Basics	2	The participant will be able to identify the steps of the CAD welding process.	Demonstrate safe access to the equipment location, prepare the materials, and make them ready for the welder.	Identify the various types of equipment being used and the application, PPE, and safety procedures.
	Capstan Hoist Orientation and Inspection	3	The participant will be able to identify the process for the inspection and use of a capstan hoist.	Demonstrate safe access to the equipment location, prepare the materials, and make them ready for the operator.	Identify the various types of equipment being used and the application, PPE, and safety procedures for the capstan.
	Connectors and Cables	3	The participant will be able to identify the correct installation method and operation of the various connectors and cable/fiber used on the job.	Demonstrate the manufacturers' required method of installation of cables and connectors.	Recognize the various manufacturers' installation requirements for the cables and connectors being used.
	Rigging	3	The participant will be able to identify the equipment requirements for rigging operations and be aware of fall zones and hand signals.	Demonstrate the ability to identify rigging equipment that was selected and situational awareness to work safely; recognize the hazards on the job within the work zone.	Recognize rigging equipment and techniques used on the job.
	General Assembly and Installation of Microwave Dishes	2	The participant will be able to identify the equipment being used and be familiar with the layout, subassembly, and assembly of equipment.	Demonstrate the ability to follow directions and assemble the equipment according to the manufacturers' requirements.	Recognize and apply the correct tools, sequence of assembly, where to find the assembly instructions, and how to read the literature.
	Hoisting Grip	3	The participant will be able to identify the equipment being used and the layout, sub-assembly, and assembly of equipment.	Demonstrate the ability to follow directions and assemble the equipment according to the manufacturers' requirements.	Recognize and apply the correct tools, sequence of assembly, know where to find the assembly instructions, and how to read the literature.
	Grounding	3	The participant will be able to identify the equipment being used and the layout, sub-assembly, and assembly of equipment.	Demonstrate and identify the components and alignment of the grounding system according to the drawings for the grounding system; demonstrate the ability to follow directions and assemble the equipment according to the site-specific drawings.	Recognize and apply the correct tools, sequence of assembly, where to find the assembly instructions, and how to read the literature.
	Base Mounted Hoists	3	The participant will be able to identify the inspection and use of a base mounted hoist.	Demonstrate safe access to the equipment location, prepare the equipment, and make it ready for the operator.	Recognize and apply the various types of equipment being used, PPE, and safety procedures for the base mounted hoist.
	Loads Affecting Rigging Structural Capacity	3	The participant will be able to identify how the rigging impacts the structure dependent upon placement, location, loading, and shock loading.	Demonstrate the ability to place rigging on the tower in a manner consistent with good rigging habits and engineer of record (EOR) approval.	Read the engineer's report and be able to replay sufficient information to the EOR to properly determine if any rigging impacts the structure's stability.
	Microwave Path Alignment	2	The participant will be able to identify the equipment being used and be familiar with the layout, subassembly, and assembly of equipment and the theory of path alignment including major and minor lobes (peaks and valleys).	Demonstrate the ability to follow directions and assemble the equipment according to the manufacturers' requirements, including the ability to lock-down the dish without impacting path alignment.	Recognize and apply the correct tools and sequence of assembly, where to find the assembly instructions, and how to read the literature including practical application of the required procedures; apply standards and best practices regarding microwave exposure prevention.

Skill Category	Minimum Competencies	Elevated Tower Technician II	Competency Objective or Outcome	Skill Based Requirement	Knowledge Based Requirement
Technical Skills (continued)	Ropes and Knots	3	The participant will be able to identify knots and the appropriate application required on the job.	Demonstrate the ability to tie all the knots required by the company. Verbalize the correct use and application of the appropriate knot.	Identify, demonstrate, and explain the application of knots used by the company.
	Installation, Repair, and Troubleshooting of Coaxial and Elliptical Components	2	The participant will be able to identify components, connectors, and how to isolate and locate faults.	Demonstrate the ability to follow directions and assemble equipment according to the manufacturers' requirements.	Know the correct tools, sequence of assembly, where to find the assembly instructions, and how to read the literature.
	Installation, Repair, and Troubleshooting of Tower Lighting Systems	2	The participant will be able to recognize the components of the tower lighting system and operational requirements, including layout, subassembly, and assembly of electrical equipment.	Demonstrate the ability to isolate and repair the inconsistencies that create lighting system faults; read lighting system drawings and describe the repair process.	Know the correct tools, sequence of assembly, where to find the installation instructions, electrical and other codes, and how to read the literature.
	Weatherproofing Installation, Removal, and Replacement	3	The participant will be able to identify the equipment being used and the layout, sub-assembly, and assembly of equipment.	Demonstrate the ability to follow directions and assemble the equipment according to the manufacturers' requirements.	Identify the correct tools, sequence of assembly, where to find the assembly instructions, and how to read the literature.
	Jumper Support and Spacing	3	The participant will be able to identify the equipment being used and the layout, sub-assembly, and assembly of equipment.	Demonstrate the ability to follow directions and assemble the equipment according to the manufacturers' requirements.	Identify the correct tools, sequence of assembly, where to find the assembly instructions, and how to read the literature.
	Phase Taping/ Color Coding	3	The participant will be able to identify and possess an expert level knowledge of the process required to properly install the tape and color coding without tension on the final three wraps.	Demonstrate the ability to identify the proper color tape and apply the tape without tension on the final three wraps.	Demonstrate the ability to identify the proper color tape and apply the tape without tension on the final three wraps, according to the client requirements or project drawings.
Safety Skills	Authorized Climber (Fall Protection)	3	An Authorized Climber is an individual with the physical capabilities to climb, who may or may not have previous climbing experience; the participant will be able to apply fall protection regulations, the equipment that applies to communication structure work, and use the equipment properly.	Demonstrate the physical abilities, skills, and knowledge for the position as an Authorized Climber.	Possess the knowledge, the skills, and training required to work safely in conditions that are exposed to a fall hazard.
	Competent Climber (Fall Protection)	3	A Competent Climber has the physical capabilities to climb, has actual tower climbing experience; is trained in fall protection regulations, including the equipment that applies to tower work; the participant will be capable of identifying existing and potential fall hazards; and will have the employer's authority to take prompt corrective action to eliminate those hazards.	Demonstrate the physical abilities, skills, and knowledge of a Competent Climber.	Apply the training, knowledge, and skills required to be a Competent Climber.

Skill Category	Minimum Competencies	Elevated Tower Technician II	Competency Objective or Outcome	Skill Based Requirement	Knowledge Based Requirement
Safety Skills (continued)	Safety Climb Facilities	3	The participant will be able to apply the standards and laws regarding anchorages, attachment points, rope grabs, etc. The participant will be able to inspect, identify, adapt, and safely use all types of climbing facilities encountered on the jobsite.	Inspect, identify, adapt, and safely use all types of climbing facilities encountered on the jobsite.	Understand and know the standards and laws regarding anchorages, attachment points, rope grabs, etc.
	Crane Operation Safety	2	The participant will be able to identify the various roles and responsibilities of the crew members; site preparation, rigging awareness; and understand regulations, company guidelines, and standards.	Identify the various roles and responsibilities of the crew members, hazards associated with crane operation, and understand how the crane safety plan will minimize the risks on the jobsite.	Know basic crane safety, regulatory requirements, industry best practices, and company operational guidelines and standards.
	DOT or Safe Driver Training	3	The participant will be able to complete, at a minimum, a driver safety program from a recognized training agency. Depending on the requirements of the job, state and federal requirements may apply in accordance with the Federal Motor Carrier Safety Administration (FMCSA).	Demonstrate safe operation of a motor vehicle while working on the job. If the vehicle is under the jurisdiction of the state or federal FMCSA, be able to complete the required documentation and operate the affected vehicle.	Exhibit the skill and knowledge required for the safe operation of a motor vehicle.
	Electrical Safety	3	The participant will be able to comprehend the OSHA Electrical Safety Standards and their application and be trained in the possible exposure to electrical hazards such as personal electric shock, arc flash, and how to use extension cords, ground fault circuit interrupters (GFCI), etc.	Demonstrate the safe use of electrical tools, cords, GFCIs, and apply electrical safety procedures.	Possess a basic understanding of ac and dc electrical safety as it applies to the job.
	Competent Tower Rescuer	3	The participant will be able to master the more advanced skills, training, and advanced rescue techniques such as self-rescue, rope access techniques, rescue planning and response, as well as evaluation and advanced first aid.	Complete advanced training and demonstrate the more advanced skills and advanced rescue techniques such as self-rescue and rope access techniques required for a rescue of a suspended person.	Possess the classroom training, knowledge, and certification in rescue planning and response to recover a person in a suspension situation, including advanced first aid.
	First Aid and CPR Certification	3	The participant will be able to perform the basics of first aid and CPR to successfully obtain certification from a recognized organization.	Demonstrate the basics of first aid and CPR to a level to obtain certification from a recognized organization and understand what is required for a company site safety emergency response.	Know the basics of first aid and CPR and what information is required for a company site safety emergency plan.
	Forklift Operation	2	The participant will be able to operate a forklift and any other powered industrial truck used on the jobsite to a level high enough to successfully obtain and maintain equipment certification from a recognized organization.	Obtain and maintain equipment certification from a recognized organization.	Apply forklift or any other powered industrial truck procedures, safety rules, and equipment operation used on the jobsite.

Skill Category	Minimum Competencies	Elevated Tower Technician II	Competency Objective or Outcome	Skill Based Requirement	Knowledge Based Requirement
Safety Skills (continued)	HazCom with GHS	3	The participant will be able to identify elements of a Hazard Communication Program, its application, and requirements for the use of chemicals in the workplace, safe handling procedures, and methods to minimize exposure.	Read and interpret a Safety Data Sheet (SDS) as it applies to the work, maintain the SDS and chemical inventory as it applies to the job, and ensure that employees are informed and provided SDSs.	Know the Hazard Communication and Global Harmonization law and how to apply the statutory requirements to the job functions.
	Ladder and Stair Safety	3	The participant will be able to use ladders safely on the job and will be able to inspect all the ladders used by the company during employment.	Demonstrate the correct and safe use of a fixed, step, stair, or extension ladder. Inspect the condition of the ladder and use it only if it is safe for the job.	Know the general safety precautions for preventing ladder accidents and how to conduct ladder inspections; know the proper use of ladders used on the job.
	Personal Physical Lifting Techniques	3	The participant will be able to identify the causes and the prevention of injuries related to awkward postures, as well as sprains and strains of the back. This includes the basic ergonomic principals for injury prevention, correct lifting and turning methods, and equipment available to prevent such injuries.	Perform a variety of tasks while elevated above the ground. Tasks typically require the use of hand tools while the worker is positioned in a precarious position on a ladder or a tower. Tools and supplies may weigh up to 50 pounds and are often lifted from the ground to the elevated work area using a rope or a tool bag attached to a rope. This type of work may be performed at one location for an extended period of time or may be repeated at multiple locations throughout the workday.	Practice and apply the basic ergonomic principals for injury prevention, correct climbing, lifting and turning methods, and how to use available equipment to prevent such injuries.
	Aerial Lift Devices and Suspended Personnel Platforms	2	The participant will be able to identify the various roles and responsibilities of the crew members; understand the personnel platform, its uses, loading, rigging, and inspecting and testing intervals.	Conduct a pre-lift safety plan; understand the type of personnel platform and the uses, loading, rigging, and inspecting and testing intervals of the lifts used by the company.	Know all of the elements of a pre-lift safety plan; identify the various roles and responsibilities of the crew members; know the personnel platform used, loading, rigging, and inspecting and testing intervals used by the company.
	OSHA 10-Hour Course	3	Through this 10-hour training program, entry-level construction workers will be able to recognize information about their rights, employer responsibilities, and how to file a complaint; also how to identify, abate, avoid, and prevent job-related hazards on a construction site.	Since workers are the target audience, these materials emphasize hazard identification, avoidance, and control—not standards. No attempt has been made to treat the 10 topics exhaustively.	Since workers are the target audience, these materials emphasize hazard identification, avoidance, and control—not standards. No attempt has been made to treat the 10 topics exhaustively.

Skill Category	Minimum Competencies	Elevated Tower Technician II	Competency Objective or Outcome	Skill Based Requirement	Knowledge Based Requirement
Safety Skills (continued)	OSHA 30-Hour Course	2	The 30-hour Construction Outreach Training Program is intended to provide a variety of training to workers with some safety responsibility. The participant will be trained in hazard identification, avoidance, control and prevention, not OSHA standards.	Since workers are the target audience, these materials emphasize hazard identification, avoidance, and control—not standards. No attempt has been made to treat the 10 topics exhaustively.	Since workers are the target audience, these materials emphasize hazard identification, avoidance, and control—not standards. No attempt has been made to treat the 10 topics exhaustively.
	Radio Frequency/ Electromagnetic Energy (RF/EME)	3	The participant will be able to identify the Radio Frequency (RF) radiation exposure limits levels in excess of the general population/uncontrolled maximum permissible exposure (MPE) limits, as stated in the Federal Communication Commission (FCC), 47 CFR 1.1310, Radiofrequency radiation exposure limits.	Identify the RF radiation exposure limits levels in excess of the general population/uncontrolled MPE limits. Understand RF radiation, impact on the body, and how to measure the RF exposure and interpret the results.	Understand the RF radiation exposure limits levels, general population/uncontrolled MPE limits, and how to monitor and interpret the readings.
	Signalman/Radio Training	2	The participant will be able to demonstrate a working level of hand signals and radio protocols in accordance with OSHA 1926.1400, Subpart CC, Cranes and Derricks in Construction. The participant will also be able to demonstrate the hand signals and radio protocols used within the company.	Demonstrate a working level of hand signals and radio protocols stated in accordance with the OSHA Cranes and Derricks regulations.	Know the content of the OSHA Cranes and Derricks regulations regarding hand signals and radio protocols, as well as the hand signals and radio protocols used within the company.
	Tool Familiarization and Operation (Right Tool for the Right Job)	3	The participant will be able to identify the fundamental principles and use of company tools, understand the preparation, use and functionality of each tool used on the jobsite, and testing for safety.	Be able to demonstrate and safely use the tools required and used in each position.	Possess the knowledge to inspect and safely use each tool.
	Trenching and Shoring	2	The participant will be able to identify the hazards of trenching and excavation, soil classification, the various methods and application of trench protective systems, and when and how to use a combination of shoring and sloping. The participant will be aware of other hazard controls required in the construction of footings and excavations.	Explain and demonstrate the types of soil classification and how to classify the soil. After testing the soil, the appropriate method and application of trench protective systems can be selected. Understand when and how to use a combination of shoring and sloping. Be aware of the hazard controls required in the construction of footings for towers, excavations, or borings.	Know the state and federal OSHA laws required when conducting trenching and excavation operations. Know soil classification and how to conduct testing. Know the various methods and application of trench protective systems and when and how to use a combination of shoring and sloping. Be aware of other hazards that could impact an excavation and the mitigation controls required.

Skill Category	Minimum Competencies	Elevated Tower Technician II	Competency Objective or Outcome	Skill Based Requirement	Knowledge Based Requirement
Safety Skills (continued)	PPE Wear and Use	3	The participant will be able to identify the priorities that should be followed to eliminate or control hazards at the source or in the work environment. Be able to evaluate, select, and identify the appropriate PPE for worker protection and the training requirements of each PPE type used on the job to be in compliance with applicable laws.	Demonstrate the correct use of all PPE types used on the worksite. Be able to conduct a PPE evaluation, select applicable PPE, and train on the inspection, testing, and maintenance for each PPE type used on the job.	Know how to evaluate, select, and identify the appropriate PPE for worker protection, and the training requirements of each PPE type used on the job to be in compliance with applicable laws.
	Lockout/Tagout	3	The participant be able to identify all the elements of the company Lockout/Tagout (LOTO) program that establishes procedures for the safe control of energy through locking and tagging of equipment and machinery on the jobsite.	Know how to implement the company written LOTO program for the machinery and equipment used on the job.	Know who is authorized and trained on LOTO on the job and how to apply the program to the machinery and equipment on the job.
	Confined Space Work Procedures	2	The participant will be able to identify the OSHA requirements for safe entry into a confined space. This awareness will include the use of confined space equipment, the requirements for permit and non-permit confined spaces, and when and how to use an entry permit. The participant will also know the responsibilities of authorized entrants, attendants, and the Supervisor; and know the requirements and procedures to be used for a rescue.	Be proficient in the use of confined space equipment and requirements. Know how to complete a permit for a confined space and when to use an entry permit. Know the responsibilities of authorized entrants and attendants, and be able to demonstrate the procedures and equipment to be used for rescue.	Know and be able to apply the OSHA requirements for safe entry into a confined space to typical work applications. This knowledge includes the use of confined space equipment, the requirements for permit and non-permit confined spaces, and when and how to use an entry permit. Know the responsibilities of authorized entrants and attendants, and know and be able to demonstrate how to conduct a rescue.
	Work Zone Safety	3	The participant will be able to identify and apply the traffic control requirements to work on or near a roadway according to the requirements from the Manual on Uniform Traffic Control Devices (MUTCD), as well as state, county, and city traffic control requirements.	Know the employee safety requirements and traffic control requirements. Know how to set up a work zone, what equipment would be required, and how to execute a short-term traffic control work zone.	Know the employee safety and traffic control requirements and state, county, and city standards required for a short-term work zone. Know what equipment is required and how to use equipment according to the permit or work zone configuration.
Other	Welding, Cutting, and Other Hot Work	1	The participant will be trained in the type of equipment used by the company and will be able to safely and proficiently demonstrate all of the significant elements of the skills of welding, cutting, and brazing.	Demonstrate a satisfactory competency level with the company welding, cutting, or brazing equipment. Identify, safely use, or understand the requirements for eye protection, ventilation, fire prevention and hot work, and gas and arc welding, including protective clothing required for the job.	Know how to do arc welding, cutting, and gas welding, and apply the safety requirements for each type of work.

Skill Category	Minimum Competencies	Elevated Tower Technician II	Competency Objective or Outcome	Skill Based Requirement	Knowledge Based Requirement
Other (continued)	Gin Poles	2	The participant will be able to identify and have a working knowledge of the inspection and use of a gin pole; understand the various sizes, types, and limitations of gin poles according to the site-specific needs; and understand ANSI Standard 1019-A.	Demonstrate the safe use of the equipment and make it ready for operation.	Know the various types of equipment being used and the application, PPE, and safety procedures for gin poles. Know the various sizes, types, and limitations of gin poles according to the site-specific needs, and understand ANSI Standard 1019-A.
	Helicopters	1	The participant will be able to recognize the operations where helicopters would be used in the company, the procedures and protocols for approaching the craft, the position and duties of the signalman, carrying tools, how to rig and sling loads, hearing protection, and other safety procedures according to the specialized use of the helicopter in the company.	Apply skills to work around helicopters according to the various operations of the company that would require their use.	Know the procedures and protocols for approaching the craft, the position and duties of the signalman, carrying tools, how to rig and sling loads, hearing protection, and other safety procedures according to the specialized use of the helicopter in the company.
	Jobsite Conditions/ Lighting/ Housekeeping/ Fire Protection	3	The participant will be able to conduct a site safety and emergency plan and site survey. The participant will be aware of the ongoing site conditions and housekeeping, and be aware of actions that are required to mitigate unsafe conditions found on the jobsite. The participant will also understand the minimum level of fire protection required, as well as what training is required for the level of fire protection on the jobsite.	Conduct a site safety and emergency plan and site survey. Be aware of the ongoing site conditions and housekeeping, and possess the skills required to mitigate unsafe conditions found on the jobsite.	Know how to develop a site safety and emergency plan and understand all of the company elements required in the plan. Know the minimum level of fire protection required, as well as what training is required for the level of fire protection on the jobsite.

## 6.0 Lead/Foreman Tower Worker

Skill Category	Minimum Competencies	Lead/Foreman Tower Worker	Competency Objective or Outcome	Skill Based Requirement	Knowledge Based Requirement
Management & Leadership Skills	Budgeting	3	The participant will be able to identify all of the elements contained in the company budgeting process and the impact various aspects of the position must contribute to budget development and ongoing efforts to keep each project on budget.	Possess the computer skills to access the budget and input the required information for budgeting or tracking.	Comprehend the company budget process and the significant elements for developing and tracking the budget.
	Cell Site Components	3	The participant will be able to identify and describe the activities for a worksite and the activities being performed.	Identify and verbalize the hazards from vehicle traffic, proximity to power lines, height of the structure, trip hazards, and other risk assessment elements from the Job Safety Analysis (JSA). Verbalize the location hazard mitigation required at a site.	Identify the hazards of the worksite and complete a JSA, perform basic first aid, and location hazard mitigation.
	Pre-Job Planning	3	The participant will be able to identify the components of the site, access, safety hazards, length of the project, scope of work to be accomplished, staffing, equipment and tools for the job.	Recognize the conditions and hazards on the site and apply the controls and resources required.	Identify and apply the safety, site, contractual requirements, scope, jurisdictional requirements, design criteria, tools, and personnel requirements and limitations. Read blueprints, construction diagrams, and technical requirements.
	Soft Skills (Interpersonal Skills)	3	The participant will be able to coach, mentor, direct and motivate other team members to develop a cohesive, harmonious, and motivated group.	Have good communication and listening skills, as well as interpersonal skills; be able to handle dispute resolution and communication across all levels of the work group.	Be knowledgeable and have training on communication and listening skills as well as interpersonal skills; have knowledge and experience on how to handle dispute resolution and communication across all levels of the work group.
Administrative Skills	Daily Forms, Site Safety, Tailgate Meeting Forms, etc.	3	The participant will be able to identify the requirements for site authorization, security, job hazard analysis, pre-job job safety meetings, JSA, as well as the documentation of the build during the day. He or she must be able to clearly detail the progress of the job, complete any company forms or required documentation, as well as opening and closing required documentation and procedures.	Complete the forms electronically, manually, or as requested by the client or company.	Use a computer and be able to accurately complete company and client documentation that is required for the job.

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Administrative Skills (continued)	Layout, Assembly, and Stacking Structures	3	The participant will be able to read construction drawings; plan all of the elements of the construction; identify material by type, size, and quantity; and inventory, as well as understand the sequence of assembly of the structure. He or she must be able to develop a rigging and erection plan and distinguish the various skill sets required of the team for the construction of the structure.	Read construction drawings; plan all of the elements of the construction; identify material by type, size, and quantity; inventory, as well as understand the sequence of assembly of the structure. Develop a rigging and erection plan and distinguish the various skill sets required of the team for the construction of the structure.	Read construction drawings and manufacturers' sequence of assembly. Possess the knowledge, skills, and ability to comply with company and client expectations. Identify the appropriate materials and equipment to complete the rigging plan.
	Materials Familiarization	3	The participant will be able to comprehend the client's needs, site materials being used on the job, and their purpose and application.	Conduct an inventory, identify the various types of equipment being used, and demonstrate proper care and storage.	Identify the various types of equipment and materials used for the job.
	Truck, Trailer, and Equipment Operation	3	The participant will have or be able to obtain the appropriate level of state-issued driver license for the equipment being driven.	Demonstrate the safe use and operation of the vehicle or equipment being used.	Possess the required training and certification for the equipment being operated. All training and certifications shall be current.
	Blueprint Orientation	3	The participant will be able to orient, read, and interpret blueprints and basic common engineering and architectural symbols used on the plans.	Demonstrate how to read blueprints, recognize symbols, and understand the relationship of the various views and pages to be successful.	Orient, read, and interpret blueprints and basic common engineering and architectural symbols used on the plans.
	Materials and Return Process	3	The participant will be able to perform the proper procedures and protocols to manage materials and the process required for returns.	Demonstrate the ability to prepare materials and paperwork to return to the manufacturer/supplier.	Apply proper procedures for cost accounting and recognition on the appropriate paperwork to maintain company financial controls.
Technical Skills	Antenna Mounting, Installation, and Maintenance	3	The participant will be able to identify the equipment being used and the layout, sub-assembly, assembly, and maintenance of equipment.	Demonstrate the ability to follow directions and assemble the equipment according to the manufacturers' requirements.	Apply the correct tools, sequence of assembly, know where to find the assembly instructions, and how to read the literature. Recognize various manufacturers' specifications for maintenance.
	Man-Rated Base Mounted Hoists Used for Personnel Lifting	3	The participant will be able to identify the inspection and use a man-rated hoist, and lift personnel according to industry best practices and OSHA compliance directives.	Demonstrate safe access to the equipment location, prepare the equipment, and make it ready for the operator.	Identify the various types of equipment being used and the application, PPE, industry best safety practices, and OSHA compliance directives.
	Basic Crane Signals, Winch Signals, and Operations	3	The participant will be able to identify crane signals, winch signals, and their operation.	Demonstrate the basic hand signals for the equipment being used.	Identify correct hand signals for the operation being performed.
	Battery Removal and Handling Hazards	3	The participant will be able to identify battery removal and handling hazards.	Demonstrate the proper handling of various battery types.	Identify the various types of batteries, polarity, safe handling, and the hazardous materials procedures.

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Technical Skills (continued)	CAD Welding Basics	3	The participant will be able to identify the steps of the CAD welding process.	Demonstrate safe access to the equipment location, prepare the materials, and make them ready for the welder.	Identify the various types of equipment being used and the application, PPE, and safety procedures.
	Capstan Hoist Orientation and Inspection	3	The participant will be able to identify the process for the inspection and use of a capstan hoist.	Demonstrate safe access to the equipment location, prepare the equipment, and make it ready for the operator.	Identify the various types of equipment being used and the application, PPE, and safety procedures for the capstan.
	Connectors and Cables	3	The participant will be able to identify the correct installation method and operation of the various connectors and cable/fiber used on the job.	Demonstrate the manufacturers' required method of installation of cables and connectors.	Identify the various manufacturers' installation requirements for the cables and connectors being used.
	Rigging	3	The participant will be able to identify the equipment requirements for rigging operations and be aware of fall zones and hand signals.	Demonstrate the ability to identify rigging equipment that was selected and situational awareness to work safely; recognize the hazards on the job within the work zone.	Identify and apply rigging equipment and techniques used on the job.
	General Assembly and Installation of Microwave Dishes	3	The participant will be able to identify the equipment being used and the layout, sub-assembly, and assembly of equipment.	Demonstrate the ability to follow directions and the assembly of the equipment according to the manufacturers' requirements.	Identify and apply the correct tools, sequence of assembly, where to find the assembly instructions, and how to read the literature.
	Hoisting Grip	3	The participant will be able to identify the equipment being used and be familiar with the layout, subassembly, and assembly of equipment.	Demonstrate the ability to follow directions and the assembly of the equipment according to the manufacturers' requirements.	Identify and apply the correct tools, sequence of assembly, know where to find the assembly instructions, and how to read the literature.
	Grounding	3	The participant will be able to identify the equipment being used and the layout, sub-assembly, and assembly of equipment.	Demonstrate and identify the components and alignment of the grounding system according to the drawings for the grounding system; demonstrate the ability to follow directions and assemble the equipment according to the site-specific drawings.	Identify and apply the correct tools, sequence of assembly, where to find the assembly instructions, and how to read the literature.
	Base Mounted Hoists	3	The participant will be able to identify the inspection and use a base mounted hoist.	Demonstrate safe access to the equipment location, prepare the equipment, and make it ready for the operator.	Identify and apply the various types of equipment being used, PPE, and safety procedures for the base mounted hoist.
	Loads Affecting Rigging Structural Capacity	3	The participant will be able to identify how the rigging impacts the structure dependent upon placement, location, loading, and shock loading.	Demonstrate the ability to place rigging on the tower in a manner consistent with good rigging habits and engineer of record approval.	Read the engineer's report and be able to replay sufficient information to the EOR to properly determine if any rigging impacts the structure's stability.
	Microwave Path Alignment	3	The participant will be able to identify the equipment being used and be familiar with the layout, subassembly, and assembly of equipment and the theory of path alignment including major and minor lobes (peaks and valleys).	Demonstrate the ability to follow directions and the assembly of the equipment according to the manufacturers' requirements, including the ability to lock-down the dish without impacting path alignment.	Identify and apply the correct tools and sequence of assembly, and where to find the assembly instructions and how to read the literature including practical application of the required procedures; apply standards and best practices regarding microwave exposure prevention.

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Technical Skills (continued)	Ropes and Knots	3	The participant will be able to identify knots and the appropriate application required on the job.	Demonstrate the ability to tie all the knots required by the company. Verbalize the correct use and application of the appropriate knot.	Identify, demonstrate, and explain the application of knots used by the company.
	Installation, Repair, and Troubleshooting of Coaxial and Elliptical Components	3	The participant will be able to identify components, connectors, and how to isolate and locate faults.	Demonstrate the ability to follow directions and assemble equipment according to the manufacturers' requirements.	Know the correct tools, sequence of assembly, where to find the assembly instructions, and how to read the literature.
	Installation, Repair, and Troubleshooting of Tower Lighting Systems	3	The participant will be able to identify the tower lighting system and operational requirements, including layout, subassembly, and assembly of electrical equipment.	Demonstrate the ability to isolate and repair the inconsistencies that create lighting system faults; read lighting system drawings and describe the repair process.	Know the correct tools, sequence of assembly, where to find the installation instructions, electrical and other codes, and how to read the literature.
	Weatherproofing Installation, Removal, and Replacement	3	The participant will have an expert knowledge of the equipment being used and be familiar with the layout, subassembly, and assembly of equipment.	Demonstrate the ability to follow directions and assemble the equipment according to the manufacturers' requirements.	Identify the correct tools, sequence of assembly, where to find the assembly instructions, and how to read the literature.
	Jumper Support and Spacing	3	The participant will be able to identify the equipment being used and the layout, subassembly, and assembly of equipment.	Demonstrate the ability to follow directions and assemble the equipment according to the manufacturers' requirements.	Identify the correct tools, sequence of assembly, where to find the assembly instructions, and how to read the literature.
	Phase Taping/ Color Coding	3	The participant will be able to identify and possess an expert knowledge of the process required to properly install the tape and color coding without tension on the final three wraps.	Demonstrate the ability to identify the proper color tape and apply the tape without tension on the final three wraps.	Demonstrate the ability to identify the proper color tape and apply the tape without tension on the final three wraps, according to the client requirements or project drawings.
Safety Skills	Competent Climber (Fall Protection)	3	A competent climber has the physical capabilities to climb; has actual tower climbing experience; is trained in fall protection regulations including the equipment that applies to tower work; the participant will be capable of identifying existing and potential fall hazards; and will have the employer's authority to take prompt corrective action to eliminate those hazards.	Demonstrate the physical abilities, skills, and knowledge of a competent climber.	Apply the knowledge, skills, and training required to work safely in conditions that are exposed to a fall hazard.
	Safety Climb Facilities	3	The participant will be able to apply the standards and laws regarding anchorages, attachment points, rope grabs, etc. The participant will be able to inspect, identify, adapt, and safely use all types of climbing facilities encountered on the jobsite.	Inspect, identify, adapt, and safely use all types of climbing facilities encountered on the jobsite.	Understand and know the standards and laws regarding anchorages, attachment points, rope grabs, etc.

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Safety Skills (continued)	Crane Operation Safety	3	The participant will be able to develop a site crane safety plan; identify the various roles and responsibilities of the crew members; site preparation, rigging awareness; and understand regulations, company guidelines, and standards.	Develop a site crane safety plan, identify the various roles and responsibilities of the crew members, hazards associated with crane operation, and understand how the crane safety plan will minimize the risks on the jobsite.	Apply basic crane safety knowledge, regulatory requirements, industry best practices, and company operational guidelines and standards.
	DOT or Safe Driver Training	3	The participant will be able to complete, at a minimum, a driver safety program from a recognized training agency. Depending on the requirements of the job, state and federal requirements may apply in accordance with the Federal Motor Carrier Safety Administration (FMCSA).	Demonstrate safe operation of a motor vehicle while working on the job. If the vehicle is under the jurisdiction of the state or federal FMCSA, be able to complete the required documentation and operate the affected vehicle.	Exhibit the skill and knowledge required for the safe operation of a motor vehicle.
	Electrical Safety	3	The participant will be able to comprehend the OSHA Electrical Safety Standards and their application and be trained in the possible exposure to electrical hazards such as personal electric shock, arc flash, and how to use extension cords, ground fault circuit interrupters (GFCI), etc.	Demonstrate the safe use of electrical tools, cords, GFCIs, and apply electrical safety procedures.	Possess a basic understanding of ac and dc electrical safety as it applies to the job.
	Competent Tower Rescuer	3	The participant will be able to perform the more advanced skills, and master the training and rescue techniques required to recover a person in a suspension situation, such as self-rescue, rope access techniques, rescue planning and response, as well as evaluation and advanced first aid.	Complete advanced training and demonstrate the more advanced skills and rescue techniques required for a suspended person rescue, such as self-rescue and rope access techniques.	Possess the classroom training, knowledge, and certification in rescue planning and response to recover a person in a suspension situation, including advanced first aid.
	First Aid and CPR Certification	3	The participant will be able to perform the basics of first aid and CPR to successfully obtain certification from a recognized organization.	Demonstrate the basics of first aid and CPR to a level to obtain certification from a recognized organization and understand what is required for a company site safety emergency response.	Know the basics of first aid and CPR and what information is required for a company site safety emergency plan.
	Forklift Operation	3	The participant will be able to operate a forklift and any other powered industrial truck used on the jobsite to a level high enough to successfully obtain and maintain equipment certification from a recognized organization.	Obtain and maintain equipment certification from a recognized organization.	Apply forklift or any other powered industrial truck procedures, safety rules, and equipment operation used on the jobsite.
	HazCom with GHS	3	The participant will be able to identify the elements of a Hazard Communication Program, its application, and requirements for the use of chemicals in the workplace, safe handling procedures, and methods to minimize exposure.	Read and interpret a Safety Data Sheet (SDS) as it applies to the work, maintain the SDS and chemical inventory as it applies to the job, and ensure that employees are informed and provided SDSs.	Know the Hazard Communication and Global Harmonization law and how to apply the statutory requirements to the job functions.

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Safety Skills (continued)	Ladder and Stair Safety	3	The participant will be able to use ladders safely on the job and will be able to inspect all the ladders used by the company during employment.	Demonstrate the correct and safe use of a fixed, step, stair, or extension ladder. Inspect the condition of the ladder and use it only if it is safe for the job.	Know the general safety precautions for preventing ladder accidents and how to conduct ladder inspections; know the proper use of ladders used on the job.
	Personal Physical Lifting Techniques	3	The participant will be able to identify the causes and the prevention of injuries related to awkward postures, as well as sprains and strains of the back. This includes the basic ergonomic principals for injury prevention, correct lifting and turning methods, and equipment available to prevent such injuries.	Perform a variety of tasks while elevated above the ground. Tasks typically require the use of hand tools while the worker is positioned in a precarious position on a ladder or a tower. Tools and supplies may weigh up to 50 pounds and are often lifted from the ground to the elevated work area using a rope or a tool bag attached to a rope. This type of work may be performed at one location for an extended period of time or may be repeated at multiple locations throughout the workday.	Practice and apply the basic ergonomic principals for injury prevention, correct climbing, lifting, and turning methods and how to use available equipment to prevent such injuries.
	Aerial Lift Devices and Suspended Personnel Platforms	3	The participant will be able to develop a pre-lift safety plan; identify the various roles and responsibilities of the crew members; understand the various types of personnel platforms and their uses, loading, rigging, and inspecting and testing intervals.	Develop a pre-lift safety plan; understand the various types of personnel platforms and their uses, loading, rigging, and inspecting and testing intervals of the lifts used by the company.	Know all of the elements of a pre-lift safety plan; identify the various roles and responsibilities of the crew members; know the personnel platforms and their uses, loading, rigging, and inspecting and testing intervals used by the company.
	OSHA 10-Hour Course	3	This 10-hour training program is intended to provide entry-level construction workers information about their rights, employer responsibilities, and how to file a complaint; also how to identify, abate, avoid, and prevent job-related hazards on a construction site.	Since workers are the target audience, these materials emphasize hazard identification, avoidance, and control—not standards. No attempt has been made to treat the 10 topics exhaustively.	Since workers are the target audience, these materials emphasize hazard identification, avoidance, and control—not standards. No attempt has been made to treat the 10 topics exhaustively.
	OSHA 30-Hour Course	3	The 30-hour Construction Outreach Training Program is intended to provide a variety of training to workers with some safety responsibility. The participant will be trained in hazard identification, avoidance, control and prevention, not OSHA standards.	Since workers are the target audience, these materials emphasize hazard identification, avoidance, and control—not standards. No attempt has been made to treat the 10 topics exhaustively.	Since workers are the target audience, these materials emphasize hazard identification, avoidance, and control—not standards. No attempt has been made to treat the 10 topics exhaustively.

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Safety Skills (continued)	Radio Frequency/ Electromagnetic Energy (RF/EME)	3	The participant will be able to identify the Radio Frequency (RF) radiation exposure limits levels in excess of the general population/uncontrolled maximum permissible exposure (MPE) limits, as stated in the Federal Communication Commission (FCC), 47 CFR 1.1310, Radiofrequency radiation exposure limits.	Understand the RF radiation exposure limits levels in excess of the general population/uncontrolled MPE limits. Understand RF radiation, impact on the body, and how to measure the RF exposure and interpret the results.	Understand the RF radiation exposure limits levels, general population/uncontrolled MPE limits, and how to monitor and interpret the readings.
	Signalman/Radio Training	3	The participant will be able to demonstrate an expert level of hand signals and radio protocols in accordance with OSHA 1926.1400, Subpart CC, Cranes and Derricks in Construction. The participant will also be able to demonstrate the hand signals and radio protocols used within the company.	Demonstrate a subject matter expert level of hand signals and radio protocols stated in accordance with the OSHA Cranes and Derricks regulations.	Know the content of the OSHA Cranes and Derricks regulations regarding hand signals and radio protocols, as well as the hand signals and radio protocols used within the company.
	Tool Familiarization and Operation (Right Tool for the Right Job)	3	The participant will be able to identify the fundamental principles and use of company tools, understand the preparation, use and functionality of each tool used on the jobsite, and testing for safety.	Demonstrate and safely use the tools required and used in each position.	Possess the knowledge to inspect and safely use each tool.
	Trenching and Shoring	3	The participant will be able to identify the hazards of trenching and excavation, soil classification, the various methods and application of trench protective systems, and when and how to use a combination of shoring and sloping. The participant will be aware of other hazard controls required in the construction of footings and excavations.	Explain and demonstrate the types of soil classification and how to classify the soil. After testing the soil, the appropriate method and application of trench protective systems can be selected. Understand when and how to use a combination of shoring and sloping. Be aware of the hazard controls required in the construction of footings for towers, excavations, or borings.	Know the state and federal OSHA laws required when conducting trenching and excavation operations. Know soil classification and how to conduct testing. Know the various methods and application of trench protective systems and when and how to use a combination of shoring and sloping. Be aware of other hazards that could impact an excavation and the mitigation controls required.
	PPE Wear and Use	3	The participant will be able to identify the priorities that should be followed to eliminate or control hazards at the source or in the work environment. Be able to evaluate, select, and identify the appropriate PPE for worker protection and the training requirements of each PPE type used on the job to be in compliance with applicable laws.	Demonstrate the correct use of all PPE types used on the worksite. Be able to conduct a PPE evaluation, select an applicable PPE, and train on the inspection, testing, and maintenance for each PPE type used on the job.	Know how to evaluate, select, and identify the appropriate PPE for worker protection, and the training requirements of each PPE type used on the job to be in compliance with applicable laws.

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Safety Skills (continued)	Lockout/Tagout	3	The participant will be able to identify all the elements of the company Lockout/Tagout (LOTO) program that establishes procedures for the safe control of energy through locking and tagging of equipment and machinery on the jobsite.	Implement the company written LOTO program for the machinery and equipment used on the job.	Know who is authorized and trained on LOTO on the job and how to apply the program to the machinery and equipment on the job.
	Confined Space Work Procedures	3	The participant will be able to identify the OSHA requirements for safe entry into a confined space. This will include the use of confined space equipment, the requirements for permit and non-permit confined spaces, and when and how to use an entry permit. The participant will also know the responsibilities of authorized entrants, attendants, and the Supervisor; and know the requirements and procedures to be used for a rescue.	Be proficient in the use of confined space equipment and requirements. Know how to complete a permit for a confined space and when to use an entry permit. Know the responsibilities of authorized entrants and attendants, and be able to demonstrate the procedures and equipment to be used for rescue.	Know and be able to apply the OSHA requirements for safe entry into a confined space to typical work applications. This knowledge includes the use of confined space equipment, the requirements for permit and non-permit confined spaces, and when and how to use an entry permit. Know the responsibilities of authorized entrants and attendants, and know and be able to demonstrate how to conduct a rescue.
	Work Zone Safety	3	The participant will be able to identify and apply the traffic control requirements to work on or near a roadway according to the requirements from the Manual on Uniform Traffic Control Devices (MUTCD), as well as state, county, and city traffic control requirements.	Know the employee safety requirements and traffic control requirements. Know how to set up a work zone, what equipment would be required, and how to execute a short-term traffic control work zone.	Know the employee safety and traffic control requirements and state, county, and city standards required for a short-term work zone. Know what equipment is required and how to use equipment according to the permit or work zone configuration.
Other	Welding, Cutting, and Other Hot Work	3	The participant will be trained in the type of equipment used by the company and will be able to safely and proficiently demonstrate all of the significant elements of the skills of welding, cutting, and brazing.	Demonstrate a satisfactory competency level with the company welding, cutting, or brazing equipment. Identify, safely use, or understand the requirements for eye protection, ventilation, fire prevention and hot work, and gas and arc welding, including protective clothing required for the job.	Know how to do arc welding, cutting, and gas welding, and apply the safety requirements for each type of work.
	Gin Poles	3	The participant will be able to identify and have expert knowledge of the inspection and use of a gin pole; understand the various sizes, types, and limitations of gin poles according to the site-specific needs; and understand ANSI Standard 1019-A.	Demonstrate the safe use of the equipment and make it ready for operation.	Know the various types of equipment being used and the application, PPE, and safety procedures for gin poles. Know the various sizes, types, and limitations of gin poles according to the site-specific needs, and understand ANSI Standard 1019-A.

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Other (continued)	Helicopters	1	The participant will be able to recognize the operations where helicopters would be used in the company, the procedures and protocols for approaching the craft, the position and duties of the signalman, carrying tools, how to rig and sling loads, hearing protection, and other safety procedures according to the specialized use of the helicopter in the company.	Apply skills to work around helicopters according to the various operations of the company that would require their use.	Know the procedures and protocols for approaching the craft, the position and duties of the signalman, carrying tools, how to rig and sling loads, hearing protection, and other safety procedures according to the specialized use of the helicopter in the company.
	Jobsite Conditions/ Lighting/ Housekeeping/ Fire Protection	3	The participant will be able to conduct a site safety and emergency plan and site survey. The participant will be aware of the ongoing site conditions and housekeeping, and be aware of actions that are required to mitigate unsafe conditions found on the jobsite. The participant will also understand the minimum level of fire protection required, as well as what training is required for the level of fire protection on the jobsite.	Conduct a site safety and emergency plan and site survey. Be aware of the ongoing site conditions and housekeeping, and possess the skills required to mitigate unsafe conditions found on the jobsite.	Know how to develop a site safety and emergency plan and understand all of the company elements required in the plan. Know the minimum level of fire protection required, as well as what training is required for the level of fire protection on the jobsite.