NATIONAL WIRELESS
SAFETY ALLIANCE

CANDIDATE HANDBOOK

- Telecommunications Tower Technician 1 (TTT-1)
- Telecommunications Tower Technician 2 (TTT-2)
- Antenna and Line (A&L) Specialty
- Advanced Rigging Concepts (ARC) Specialty
- Foreman (FOR)

NWSA CH REV 04/25

This handbook and application packet for the NWSA examinations contains important information related to your certification requirements. Please read this handbook carefully and retain it for reference throughout the certification process.

Do not discard this document.

The National Wireless Safety Alliance (NWSA) does not discriminate on the basis of race, color, religion or creed, gender, gender expression, age, national origin or ancestry, disability, marital status, sexual orientation, or military status in any of its activities or operations. These activities include, but are not limited to, the employment of staff, selection of volunteers and vendors, and provisioning of services. The NWSA is committed to providing an inclusive and welcoming environment for all staff members, volunteers, subcontractors, vendors, certification applicants, and certificants.

This NWSA certification program is accredited by the American National Standards Institute (ANSI) to ISO 17024 (General Requirements for Bodies Operating Certification Systems of Persons).

ANAB
ANSI National Accreditation Board
ACCREDITED
ISO/IEC 17024
PERSONNEL CERTIFICATION BODY
#8911
Telecommunications Tower Technician 1 and Telecommunications Tower Technician 2 Programs Accredited

Dear NWSA Certification Candidate:

Welcome to the National Wireless Safety Alliance (NWSA) telecommunications worker certification programs.

The NWSA is a nonprofit organization founded in 2015 to establish a fair and independent evaluation of telecommunications knowledge and skills. Key to this industry-led effort was the development of the NWSA Examinations. These nationally recognized certification programs are the culmination of diligent hard work by experts representing various industry stakeholders that use and understand telecommunications services.

The NWSA Telecommunications Tower Technician Task Force that developed the first two NWSA certification programs (TTT-1 and TTT-2) was made up of experts from all segments of the telecommunication industry—tower technicians, carriers, tower owners, contractors, trainers, manufacturers, and suppliers—who together represent many thousands of hours of related experience. These volunteers gave freely of their time and expertise with the primary goal of improving the safety of all whose work brings them into contact with communication structures and related equipment.

Following the successful launch of the Technician programs, NWSA recognized the complexity of work associated with the telecommunications industry. To best support the evolving nature of that work, NWSA has created three new certifications allowing telecom workers to demonstrate that they possess unique sets of knowledge and skills associated with different types of telecommunications work. The first subsequent program—Foreman certification—was followed by the Antenna and Line (A&L) Specialty and the Advanced Rigging Concepts (ARC) Specialty. Additional specialties are planned for future development.

To ensure NWSA examinations are—and remain—valid measurements of telecom workers' proficiency, NWSA teamed up with the National Commission for the Certification of Crane Operators (NCCCO) for its exam development expertise and subject matter experts in the telecom industry for their knowledge and experience. In addition to guiding the development of new examinations, NWSA continually analyzes the performance of its exams and reports to the Exam Management Committees. To be able to provide fair and independent assessments, NWSA does not conduct training, nor does it provide training materials.

NWSA, as a third-party certification body, is fully committed to, and understands the importance of, delivering all certification activities on a foundation of impartiality. All policies and procedures are established in an objective manner and ultimately strive to achieve fairness throughout all activities. NWSA prevents any conflicts of interest through detailed policies and procedures observed by staff, governing body representatives, and those involved in exam administration.

This candidate handbook has been developed to provide you with comprehensive information about the NWSA examinations leading to certification. NWSA recognizes the commitment you are about to make and will do everything it can to make your experience a positive and successful one. If, after reading this handbook, there is anything you do not fully understand, please call NWSA at 703-459-9211 or email customerservice@nws-a.org. NWSA staff will guide you through any element of the program that you would like explained in greater detail.

Thank you for your interest—and good luck with your efforts to become NWSA-certified!

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Introduction

PROGRAM DESCRIPTION

The National Wireless Safety Alliance (NWSA) is an independent, nonprofit organization formed to set standards for fairly measuring the knowledge and proficiency required for safe operations during the performance of wireless telecommunications work. NWSA currently administers certification programs for workers in the telecommunications industry.

Based on extensive discussions with subject matter experts from all segments of business and industry who recognize the impact of safety issues, NWSA has identified the following potential benefits of telecommunications worker certification:

- Fewer accidents, injuries, and fatalities
- Reduced risk of loss
- Increased knowledge and skill of telecom workers
- Assurance of telecom workers' abilities
- Less property damage
- Improved safety records
- Enhanced public image of telecom workers

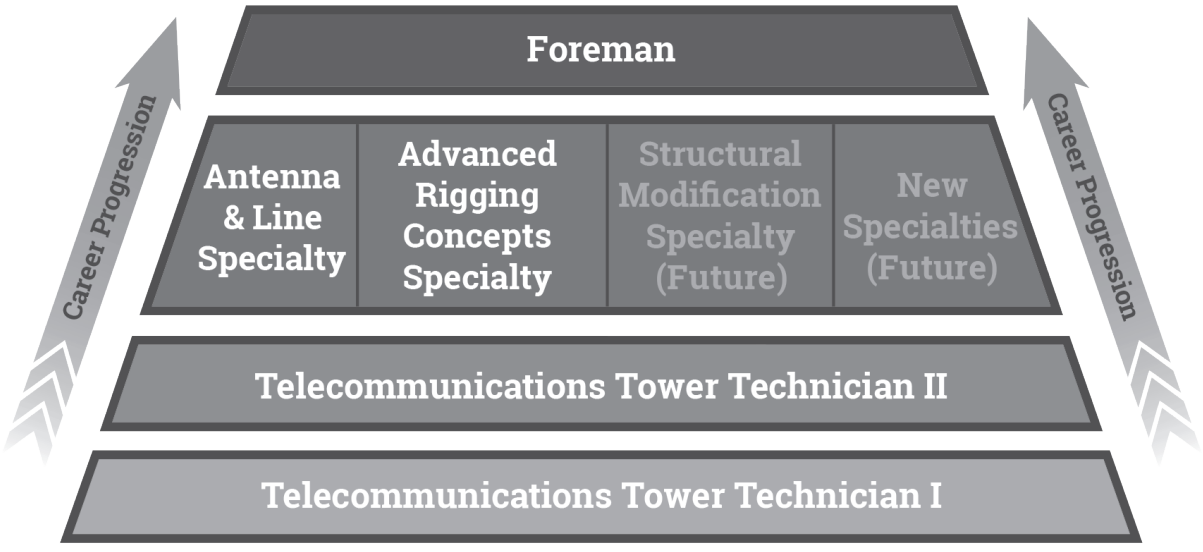
The industry experts initially defined two levels of telecommunications tower technician certification for crew members who perform general construction activities with an emphasis on tower system installation, modification, maintenance, and inspection of support structures used in telecommunications, including personal wireless communications, public safety communications, utility networks, and broadcast. These two levels were defined as:

- **Telecommunications Tower Technician 1 (TTT-1)**: An individual who can safely perform tasks on telecommunication sites under direct supervision
- **Telecommunications Tower Technician 2 (TTT-2)**: An individual who can safely perform tasks on telecommunication sites and is capable of supervision of TTT-1 technicians and trainees; TTT-2 candidates must earn TTT-1 certification to be eligible for TTT-2 certification

All candidates are required to pass an examination to be certified. Separate examinations are required for each certification designation. The initial certification period is for five years, after which certificants are required to recertify.

The **Antenna and Line Specialty (A&L)** is the first specialty offered by NWSA. It focuses on the fundamental requirements for installation, repair, troubleshooting, and maintenance of antennas, transmission lines, and mounts on communication structures. This exam includes real-world practical scenarios replicating the work that telecommunications workers do in the field. To achieve the A&L Specialty certification, a candidate must be TTT-2

NWSA Hierarchy of Certifications



certified. The initial certification period is for five years, after which certificants are required to recertify.

The **Advanced Rigging Concepts (ARC)** specialty is the second certification offered by NWSA. It focuses on the advanced knowledge and skills required to handle and lift loads on standard and non-standard antenna-supporting structures. Individuals certified in ARC are trained to create construction plans following the ANSI/ASSP A-10.48 standard and are proficient in selecting, inspecting, and using rigging equipment. This is a written specialty exam and includes real-world practical scenarios replicating the work that telecommunication workers do in the field. To earn the ARC certification, candidates must first hold a TTT-2 certification. The certification is valid for five years, after which recertification is required.

At the highest level, **Foreman (FOR)** certification focuses on core knowledge, skills, and responsibilities required of supervisors of crews performing construction, installation, demolition, and/or maintenance on communication sites in accordance with construction drawings and/or written scopes of work. This is an exam that assesses the candidate's knowledge of many typical Foreman responsibilities to ensure work is performed in compliance with applicable industry standards and best practices. To achieve the Foreman certification, a candidate must be TTT-2 certified. The initial certification period is for five years, after which certificants are required to recertify.

NWSA designed these certification programs with a career progression in mind. Individuals, whether entering the industry for the first time or seasoned veterans can align their level of expertise with the NWSA hierarchy of certifications.

NWSA EXAMINATION DEVELOPMENT

The first step in the development of an objective exam is to measure what is required for safe telecommunications work. A job analysis study identified the knowledge and skills necessary for safe operations at job sites. A representative number of telecommunications workers then validated that the knowledge recommended by the experts was vital to safe operations. The exam blueprints and content specifications were then generated from the validation study.

Development of the examinations involved a task force of industry content experts who worked with NWSA to write and review all questions used in the examinations. Each examination contains a unique combination of questions from the question bank. Questions are selected for examinations on the basis of the content areas and specialties defined by the exam blueprints.

NWSA teamed up with the National Commission for the Certification of Crane Operators (NCCCO) for its exam development expertise and with the task force for its knowledge and experience. NWSA and NCCCO guided the task force in establishing key elements of the program, including identifying essential skills, selecting tasks, standardizing exam conditions, developing the scoring process, pilot exams, establishing reliability among exams, and creating flexible application and scheduling procedures.

EXAM SCORING INFORMATION

NWSA exams are criterion-referenced examinations; i.e., the passing score is set beforehand, and candidate performance on the examination is not compared to the performance of others taking the examination. In a criterion-referenced examination, a candidate must obtain a score equal to or higher than a predetermined passing score to pass the exam. The passing scores represent absolute standards and are determined by panels of NWSA content experts using a psychometrically accepted standard-setting methodology.

In reporting the examination results to candidates, statistical procedures are used to convert raw scores (i.e., the number of exam questions answered correctly) to scaled scores, which are equivalent for all administrations of the examination(s). The scaled score is not a number-answered-correctly score.

Candidate results for NWSA exams are reported as a scaled score. Please note that this is ***not*** a percentage score. Exam score reports include a strength and weakness report by content domain.

Certification Policies

For detailed information about each program's exam contents, reference list, and sample questions, see the appropriate sections of this handbook:

For instructions on how to register and take exams, see:

TELECOMMUNICATIONS TOWER TECHNICIAN 1 (TTT-1)

Eligibility

To be eligible for TTT-1 certification, candidates must:

- Pass the TTT-1 written examination
- Comply with the NWSA policies and procedures per the Attestation Statement

TTT-1 Examination

The TTT-1 exam has 85 multiple-choice questions. Candidates are allowed 90 minutes to complete this examination. Exams are delivered via online remote proctoring (ORP). Exam results are reported as a scaled score (not a percentage score) with a score of **70 out of 100** representing the minimum passing score for this exam.

Exam Fee: $274

Recertification Requirements

TTT-1 certification is valid for five years. Candidates must complete all their recertification requirements during the 12 months prior to their certification's expiration date. This includes:

- Passing the TTT-1 examination. This exam will be the same exam as the primary certification exam that is in use at the time of the candidate's recertification.
- Compliance with NWSA's policies and procedures per the Attestation Statement

There is no grace period after certification has expired. Candidates whose certification has lapsed must take the full examinations to be certified again.

The Certified TTT-1 Examination consists of 85 multiple-choice questions.

TELECOMMUNICATIONS TOWER TECHNICIAN 2 (TTT-2)

Eligibility

To be eligible for TTT-2 certification, candidates must:

- Be certified as a TTT-1
- Pass the TTT-2 examination
- Comply with the NWSA policies and procedures per the Attestation Statement

TTT-2 Examination

The TTT-2 written exam has 100 multiple-choice questions. Candidates are allowed two hours to complete this examination. Exam results are reported as a scaled score (not a percentage score) with a score of **72 out of 100** representing the minimum passing score for this exam.

Exam Fee: $274

Recertification Requirements

TTT-2 certification is valid for five years. Candidates must complete all their recertification requirements during the 12 months prior to their certification's expiration date. This includes:

- Passing the TTT-2 Examination. This exam will be the same exam as the primary certification exam that is in use at the time of the candidate's recertification.
- Compliance with NWSA's policies and procedures per the Attestation Statement

Regardless of the date of the recertification examination within that one-year period, the new five-year certification period begins from the date of expiration of the candidate's most recent certification. Candidates who recertify more than 12 months prior to their expiration date will have their new certification period begin immediately, not from the end of their current certification period.

There is no grace period after certification has expired. Candidates whose certification have lapsed must take the full examination(s) to be certified again.

NOTE: TTT-2 certificants must only take and pass the TTT-2 recertification exam to maintain both TTT-1 and TTT-2 certifications. If a TTT-2 recertification candidate fails the recertification exam twice, he/she is required to take the full TTT-1 and TTT-2 exams again to maintain certification.

ANTENNA AND LINE (A&L) SPECIALTY

Eligibility

To be eligible for A&L certification, candidates must:

- Be certified as a TTT-2
- Pass the Antenna and Line examination
- Comply with the NWSA policies and procedures per the Attestation Statement

A&L Examination

The Antenna and Line Specialty exam has 70 multiple choice questions. Candidates are allowed two hours to complete this examination. Exam results are reported as a scaled score (not a percentage score) with a score of **70 out of 100** representing the minimum passing score for this exam.

The practical application of antenna and line knowledge and skills is examined on the written exam through the incorporation of scenario-based questions using the types of drawings and schematics common to antenna and line work. These scenarios examine technicians' ability to read and interpret the drawings and use the information contained within.

Exam Fee: $274

Recertification Requirements

A&L certification is valid for five years. Candidates must complete all their recertification requirements during the 12 months prior to their certification's expiration date. This includes:

- Passing the A&L Examination. This exam will be the same exam as the primary certification exam that is in use at the time of the candidate's recertification.
- Compliance with NWSA's policies and procedures per the Attestation Statement.

Regardless of the date of the recertification examination within that one-year period, the new five-year certification period begins from the date of expiration of the candidate's most recent certification. Candidates who recertify more than 12 months prior to their expiration date will have their new certification period begin immediately, not from the end of their current certification period.

There is no grace period after certification has expired. Candidates whose certification have lapsed must take the full examination(s) to be certified again.

NOTE: A&L certificants must only take and pass the then current A&L exam to maintain all lower level certifications.

ADVANCED RIGGING CONCEPTS (ARC) SPECIALTY

Eligibility

To be eligible for ARC certification, candidates must:

- Be certified as a TTT-2
- Pass the Advanced Rigging Concepts examination
- Comply with the NWSA policies and procedures per the Attestation Statement

ARC Examination

The Advanced Rigging Concepts exam has 95 multiple choice questions. Candidates are allowed 150 minutes to complete this examination. Exam results are reported as a scaled score (not a percentage score) with a score of 70 out of 100 representing the minimum passing score for this exam.

Exam Fee: $274

Recertification Requirements

ARC certification is valid for five years. The specific recertification requirements have not yet been finalized but will be announced when completed.

FOREMAN (FOR)

Eligibility

To be eligible for Foreman certification, candidates must:

- Be certified as a TTT-2
- Pass the Foreman Examination
- Comply with the NWSA Policies and Procedures per the Attestation Statement

Foreman Examination

The Foreman exam has 70 multiple choice questions. Candidates are allowed 90 minutes to complete this exami-

nation. Exam results are reported as a scaled score (not a percentage score) with a score of **70 out of 100** representing the minimum passing score for this exam.

Exam Fee: $274

Recertification Requirements

Foreman certification is valid for five years. Candidates must complete all their recertification requirements during the 12 months prior to their certification's expiration date. This includes:

- Passing the Foreman Examination. This exam will be the same exam as the primary certification exam that is in use at the time of the candidate's recertification.
- Compliance with NWSA's policies and procedures per the Attestation Statement.

Regardless of the date of the recertification examination within that one-year period, the new five-year certification period begins from the date of expiration of the candidate's most recent certification. Candidates who recertify more than 12 months prior to their expiration date will have their new certification period begin immediately, not from the end of their current certification period.

There is no grace period after certification has expired. Candidates whose certification have lapsed must take the full examination(s) to be certified again.

NOTE: Foreman certificants must only take and pass the then current Foreman exam to maintain all lower-level certifications.

ALL PROGRAMS

NWSA Examination Fees

Telecommunications Tower Technician 1 (TTT-1)

- Exam (via ORP) $274

Telecommunications Tower Technician 2 (TTT-2)

- Exam (via ORP) $274

Antenna and Line (A&L) Specialty

- Exam (via ORP) $274

Advanced Rigging Concepts (ARC) Specialty

- Exam (via ORP) $274

Foreman (FOR)

- Exam (via ORP) $274

Other Fees

An additional $35 will be charged if a candidate:

- Requests or needs a replacement certification card

An additional $30 will be charged if:

- Any changes are requested after submitting the application

Seeking Multiple Certifications

Following the Hierarchy of Certifications, NWSA encourages candidates to add certifications as individuals progress through their telecommunications career. When seeking multiple certifications on the hierarchy of certifications, candidates are required to complete their certifications in order, moving from the lower-level certifications to the-higher level certifications.

For each subsequent certification added on the hierarchy of certifications, an additional credential will be issued, and the expiration date will be extended five years from the date of completing the latest certification. This new expiration date applies to all certifications. For example, a candidate originally certified as a TTT-1 on March 31, 2022 (expiring on March 31, 2027), then adds TTT-2 certification on April 15, 2023, the expiration date for both certifications will be extended to April 15, 2028.

Code of Ethics

NWSA candidates and certificants must comply with NWSA's Code of Ethics during their certification, as set forth below:

In my occupation, I will conduct myself in a manner:

i. *So as to place the safety and welfare of others associated with my work above all other considerations;*

ii. *So as to protect and preserve nearby general public property and the environment; and*

iii. *So as to be free of bias with regard to religion, ethnicity, gender, age, national origin, and disability.*

Furthermore, in connection with my work and in my dealings with NWSA, I will:

iv. *Make management and appropriate personnel aware promptly if I have any safety concerns relating to the work that I am performing or with which I am involved;*

v. *Not knowingly violate any safety-related regulations, warnings, or instructions set forth by OSHA, recognized*

safety standards, prevailing jurisdictions, or equipment manufacturers; and,

vi. *Not mislead, misrepresent or knowingly deceive others concerning my experience or the capabilities of myself or the equipment I am operating or with which I am working.*

In addition, in my dealings with NWSA, I will:

vii. *Provide accurate and complete information and abide by NWSA's policies and procedures, including this Code of Ethics, as they may be updated from time to time;*

viii. *Cooperate fully and completely with any administrative inquiries or investigations by NWSA; and,*

ix. *Not misrepresent or misuse any NWSA card, or the NWSA or NWSA acronyms and logos, or any registered trademark or other intellectual property of NWSA; and I understand that I must return the card to NWSA immediately if required to do so.*

NWSA certified personnel who intentionally or knowingly violate any provision of the Code of Ethics will be subject to action by the Ethics and Discipline Committee, which may result in suspension or revocation of certification.

More details on NWSA's Code of Ethics and related policies and procedures can be found at www.nws-a.org.

Disciplinary Policy

NWSA's Ethics and Discipline Committee is responsible for establishing and implementing standards of conduct, such as ethical standards, as well as policies and procedures for disciplinary action.

Grounds for sanctions, including revocation of certification status, shall include, but not be limited to, the following:

1. Period of certification exceeded without renewal.
2. Evidence of falsification of any information on any documents submitted to NWSA or its agents.
3. Evidence of culpability in an accident during certification period.
4. Evidence of non-compliance with the Code of Ethics.

In general, NWSA's Ethics and Discipline Committee considers matters as presented and/or recommended by NWSA Staff, which is empowered to issue temporary suspensions and take other interim action pending action and/or decision by the Ethics and Discipline Committee. If a certificant fails to request a hearing before the Ethics and Discipline Committee, after reasonable notice, NWSA Staff's recommendations to the Committee shall assume full force and effect.

As set forth in NWSA's Appeals Policy and Procedures, NWSA has established policies and procedures by which certificants may appeal sanctioning decisions by the Ethics and Discipline Committee to the Board of Directors. Certificants who wish to appeal a sanction by the Committee, including revocation, must do so in writing, stating the grounds for the appeal. This should be addressed to:

NWSA Board of Directors
c/o Executive Director
National Wireless Safety Alliance (NWSA)
PO Box 521267
Salt Lake City, UT 84152

The decision of the NWSA Board of Directors is final.

Certification Cards

NWSA-certified telecom workers receive a verifiable digital certification when they certify.

Physical certification cards may be obtained from NWSA at a cost of $35; order via the NWSA candidate portal.

Certification cards remain the property of NWSA, are not transferable, and must be returned to NWSA upon demand.

Change of Address

Certificants who change their address must update their candidate profile as soon as possible. Failure to do so may cause important updates on NWSA's programs to be missed that could affect a certificant's stature. It is solely the certificant's responsibility to ensure their contact information is kept current.

Examination Process

NWSA CANDIDATE PORTAL

All candidates applying for NWSA exams need to create a NWSA Candidate Portal profile to submit their exam applications and payments. The NWSA Candidate Portal profile is free and takes only minutes to set up.

Account profiles may be created at any time, but no less than two business days before the preferred exam date.

NWSA Candidate Portal Profile Creation

1. Go to nwsa.useclarus.com and select "Create New Profile."
2. Create an account by providing a personal, permanent email address, contact information, and required identification.
3. Submit profile for staff review and approval. Applications may not be submitted prior to profile approval.
4. Candidates will be notified via email once staff have reviewed and approved the profile.

Apply for NWSA Examinations

1. Go to nwsa.useclarus.com and login to your profile.
2. Once you are logged in, submit an online application and pay for the exam(s) by selecting "Exam Applications" and supplying the necessary information.
3. Exams will be available to schedule within 15 minutes from submission. (Note: ADA requests may add an additional delay.)
4. Candidates have six months from the date of application to take exam(s).

EXAM SECURITY

For the purpose of exam security, candidates who sit for NWSA examination(s) acknowledge that they understand the following:

- This examination is the exclusive property of NWSA.
- This examination and the questions contained therein are protected by federal copyright law.
- No part of the examination(s) may be copied or reproduced in part or whole by any means whatsoever, including memorization.
- Theft or attempted theft of an examination or any of its contents is punishable as a felony.
- During an exam administration, candidates are considered professionals and shall be treated as such. In turn, candidates must conduct themselves in a professional manner at all times. They shall not use words or take actions that are vulgar, obscene, libelous, or that would denigrate the staff or other candidates.
- No conversing or any other form of communication among the candidates is permitted once they enter the examination area.
- No smoking, eating, or drinking is allowed at the examination site.
- No guests, visitors, or family members are allowed in the examination room or reception areas.
- Candidate participation in any irregularity during the examination, such as giving or obtaining unauthorized information or aid, as evidenced by observation or subsequent statistical analysis, may be sufficient cause to terminate participation, invalidate the results of the examination, or other appropriate remedy.
- Prior to starting the exam, the candidate must confirm that they have read and understand the conditions under which the exam is to be administered.

EXAMINATION PROCESS

Candidates take their written examinations via Online Remote Proctoring (ORP) using an internet-connected computer. Candidates will be monitored by a live online proctor for the full duration of the exam. Exams can be taken from almost anywhere, 24/7/365. Computers must meet minimum technical requirements as found at www.nws-a.org. For more information, go to www.nws-a.org.

Applications may be submitted at any time.

Once the application has been processed, candidates will receive a scheduling authorization email with specific instructions on how to schedule the date and time of their exam. Scheduling exam appointments occurs through the NWSA candidate portal. Once scheduled, candidates will receive an NWSA appointment confirmation email with the date and time of their appointment.

Candidates will receive preliminary exam results immediately following the exam.

Candidates Requesting Examination Accommodations

Arrangements for persons with disabilities will be provided upon request, in conformance with the Americans with Disabilities Act (ADA). Professional documentation in support of a request for accommodation must be submitted to NWSA no later than four weeks prior to the preferred exam date. For further information about exam accommodations, see the complete NWSA Examination Accommodations Policy at: www.nws-a.org/policies/testing-accommodations.

Rescheduling/Cancellation

The following policies apply should a candidate be unable to attend the scheduled exam appointment.

- Candidates may reschedule or cancel their ORP exam appointment at no cost through the NWSA candidate portal at least 30 minutes prior to the exam start time.
- Candidates who are 59 minutes late for their ORP appointment, miss their exam appointment entirely, or do not take their exam within six months of their application submission will forfeit their fees.

Identification

Candidates must have available valid (not expired) government-issued photo identification that includes date of birth on the day of the exam administration.

Acceptable forms of photo identification include a current:

- Passport
- Government–issued driver's license
- Military identification card
- U.S. Government–issued alien registration card

NOTE: Candidates without appropriate identification documents will NOT be permitted to take the NWSA examination(s) and all fees will be forfeited.

Candidate Question Comment Forms

Candidates can comment on the examination(s) as a whole or on specific items within an examination by writing their comments in the "Comments" field that appears with each question. Examination comments are reviewed by NWSA content experts on a regular basis.

NOTE: Only comments provided in the "Comments" field will be considered for review.

Score Reporting

- Candidates will receive preliminary exam results immediately following the examination.
- Candidates results will also be available in the NWSA Candidate Portal.

Retaking the Examination(s)

Candidates must wait at least 30 days between attempts on a failed exam. Candidates will need to reapply and pay all corresponding re-examination fees. Candidates may schedule an exam appointment 30 days after the failed attempt.

Information Release Policy

NWSA releases information pertaining to individuals who have successfully passed one or more NWSA examinations according to its Information Release Policy found in this handbook.

Telecommunications Tower Technician 1 (TTT-1) Exam Details

EXAM OUTLINE

The NWSA Telecommunications Tower Technician 1 (TTT-1) examination examines the following knowledge areas relating to the telecommunications tower technician:

Domain 1: Planning the Scope of Work and Job Logistics

- Approximately 17% of exam

Domain 2: Fall Protection Climber–Rescuer

- Approximately 38% of exam

Domain 3: Hoisting Equipment and Rigging

- Approximately 16% of exam

Domain 4: Structures

- Approximately 10% of exam

Domain 5: Appurtenance Installation and Maintenance

- Approximately 10% of exam

Domain 6: Equipment/Special Operations

- Approximately 9% of exam

Domain 1: Planning Scope of Work (SOW) and Job Logistics

1. Recognize the activities and hazards of the worksite, including but not limited to:
   a. Vehicle operations and traffic awareness
   b. Energized power lines
   c. The height/type of the structure
   d. Trip hazards
   e. Environmental hazards
2. Recognize the requirements for daily meetings and forms, including but not limited to:
   a. Site authorization
   b. Site security requirements
   c. Job hazard assessment (JHA)
   d. Emergency action plan
3. Recognize changes to ongoing site conditions, including but not limited to:
   a. Housekeeping
   b. Fire protection
   c. Unsafe conditions
   d. Drop zone
4. Demonstrate how to orient, read and interpret assembly drawings.
5. Recognize RF radiation hazards and emitors (non-ionizing radiation).
6. Demonstrate how to inspect, care for, and select the appropriate personal protective equipment (PPE).
7. Recognition of traffic control requirements and equipment considering concerning pedestrians and vehicles.

Domain 2: Fall Protection Climber-Rescuer

1. Describe and demonstrate the requirements and use of fall protection.
2. Demonstrate the knowledge and skills required to perform rescue (i.e., rescue systems).
3. Identify types of hazards, standards, and inspection requirements of climbing.
4. Identify and select anchorage and attachment points.
5. Recognize the requirements for the safe use and inspection of portable ladders.
6. Identify equipment and hazards associated with controlled descent.

Domain 3: Hoisting Equipment and Rigging

1. Recognize different types of hoists and their uses (i.e., base mount, man-rated, capstan).
2. Recognize the elements of personnel hoisting operation, including the roles and responsibilities of crew members.
3. Recognize the requirements for rigging operations, including:
   a. Rigging Techniques
   b. Equipment
   c. Hand Signals
   d. Classifications
   e. Cranes
4. Recognize how the rigging system impacts the structure, including:
   a. Placement/Location
   b. Loading (operational and non-operational)
5. Identify rope types required maintenance.
6. Demonstrate tying, dressing, and setting knots/hitches.
7. Recognize the types of gin poles.

Domain 4: Structures

1. Identify the types and characteristics of structures, including but not limited to:
   a. Guyed

b. Self-Supporting
c. Monopole
d. Non-standard structures (i.e. utility pole, water tanks etc.)
e. Rooftops

2. Identify structure deficiencies and required maintenance for inspection and modification, including:
   a. Routine maintenance
   b. Modifications
   c. Visual inspections
   d. Foundations
3. Interpret construction drawings, including the ability to identify materials by:
   a. Types
   b. Size
   c. Quantity
   d. Sequence of assembly
   e. Application
4. Identify grounding systems.

Domain 5: Appurtenance Installation and Maintenance

1. Assemble and install appurtenance (i.e., antenna/microwave, climbing facilities).
2. Identify the components of obstruction lighting systems.
3. Identify connectors, transmission lines, and components (i.e., weatherproofing, hangers etc.).
4. Demonstrate alignment of appurtenances (i.e., dishes and antennas, azimuth).
5. Identify and use the tools and materials necessary for the installation of grounding systems.
6. Recognize the hazards and electrical safety requirements of AC and DC electricity.

Domain 6: Equipment/Special Operations

1. Recognize type and requirements for the use of mobile elevating work platforms (i.e., aerial lifts).
2. Recognize lockout/tagout on the job.
3. Identify the hazards associated with:
   a. Batteries
   b. Forklifts
   c. Motorized equipment
   d. Site decommissioning/demolition
   e. Welding/cutting/exothermic welding process
   f. Helicopter
4. Identify the requirements for drone operation.
5. Recognize hazards regarding confined spaces.

REFERENCE LIST

TTT-1 examination questions were written by NWSA's subject matter experts. The following list was among reference materials cited as the basis for the exam questions.

Candidates are strongly advised to become familiar with industry standards, practices, and relevant manufacturers' instructions in preparing for the NWSA certification examinations.

TTT-1 Reference Materials

Primary References:

1. **ANSI/ASSE A10.48-2016 Criteria for Safety Practices with the Construction, Demolition, Modification and Maintenance of Communication Structures**
   Order by Internet: http://www.asse.org/ansi/asse-a10-48-2016 criteria-for-safety-practices-with-the-construction-demolition-modification-and-maintenance-of-communication-structures/
2. **Occupational Safety and Health Administration, U.S. Department of Labor, Code of Federal Regulations, Parts 1910 and 1926**
   Download from Internet: http://www.osha.gov/
3. **ANSI/ASSE Z359 Fall Protection Code**
   Order by Internet: http://www.asse.org/ansi/asse-z359-fall-protection-code-version-3-0-/
4. **FCC OET Bulletin 65 - Evaluating Compliance with FCC Guidelines for Human Exposure to Radio frequency Electromagnetic Fields**
   Order by Internet: https://www.fcc.gov/general/oet-bulletins-line
5. **IEEE C95.7-2014 - IEEE Recommended Practice for Radio Frequency Safety Programs, 3 kHz to 300 GHz**
   Order by Internet: https://standards.ieee.org/findstds/standard/C95.7-2014.html
6. **ANSI/TIA 222 Revision G: STRUCTURAL STANDARD FOR ANTENNA SUPPORTING STRUCTURES AND ANTENNAS**
   Order by Internet: http://www.tiaonline.org/standards/buy-tia-standards

Secondary References:

1. **Motorola Publication R56 – Standards and Guidelines for Communication Sites**
   Download from Internet: www.nws-a.org
2. **NATE - RF Awareness Booklet**
   Order by Internet: https://natehome.com/safety-education/1893-2/
3. **NFPA 70E: Standard for Electrical Safety in the Workplace**

Order by Internet: http://www.nfpa.org/codes-and-standards/all-codes-and-standards/list-of-codes-and-standards?mode=code&code=70e&tab=editions

4. **ANSI/ASSE A10.32-2012 Personal Fall Protection Used in Construction and Demolition Operations**

   Order by Internet: http://www.asse.org/ansi/asse-a10-32-2012-personal-fall-protection-used-in-construction-and-demolition-operations/ansi/asse-a10-32-2012-personal-fall-protection-used-in-construction-and-demolition-operations/

SAMPLE QUESTIONS

The following are sample exam questions typical of the style and content of the questions used in NWSA examinations:

TTT-1 Sample Items

1. When erecting a new tower that has not yet been equipped with its safety climb system, what is a common temporary method used to ensure 100% fall protection over the height of the tower?
   a. Vertical lifeline
   b. Safety net
   c. Horizontal lifeline
   d. Guard rail system
2. What are the biological effects of RF Radiation?
   a. Sterility
   b. Radiation Sickness
   c. Thermal effects
   d. Cancer
3. What is the anchorage point strength requirement for a personal fall arrest system?
   a. 3,500 lb. (15.5kN)
   b. 4,000 lb. (19.5kN)
   c. 4,500 lb. (8kN)
   d. 5,000 lb. (22.3kN)
4. What is the minimum number of fire extinguisher(s) required to be on a jobsite?
   a. 1
   b. 0
   c. 2
   d. 5
5. What information does a Safety Data Sheet (SDS) provide?
   a. Hazardous chemicals
   b. Injuries in the workplace
   c. Medical examinations
   d. Machinery maintenance

Question #	Answer
1	A
2	C
3	D
4	A
5	A

Telecommunications Tower Technician 2 (TTT-2) Exam Details

EXAM OUTLINE

The NWSA Telecommunications Tower Technician 2 (TTT-2) exam examines the following knowledge areas relating to the telecommunications tower technician:

Domain 1: Planning Scope of Work (SOW) and Job Logistics

- Approximately 12% of exam

Domain 2: Fall Protection Climber-Rescuer

- Approximately 17% of exam

Domain 3: Hoisting Equipment and Rigging

- Approximately 37% of exam

Domain 4: Structures

- Approximately 14% of exam

Domain 5: Appurtenance Installation and Maintenance

- Approximately 10% of exam

Domain 6: Equipment/Special Operations

- Approximately 10% of exam

Domain 1: Planning Scope of Work (SOW) and Job Logistics

1. Assess, plan, and manage ongoing activities of the worksite and mitigation of hazards (Job Hazard Assessment), including but not limited to:
   a. Vehicle operations and traffic awareness
   b. Energized power lines
   c. Hazard communications
   d. Fire protection
   e. Housekeeping
   f. Drop zone
2. Implement the requirements for daily meetings and forms, including but not limited to:
   a. Site authorization
   b. Site security requirements
   c. Job hazard assessment (JHA)
   d. Emergency action plan
   e. Site client/owner notification
3. Assess RF radiation hazards and emitors (non-ionizing radiation).
4. Demonstrate and assess how to inspect, care for, and select the appropriate personal protective equipment (PPE).
5. Implement traffic control requirements and equipment considering pedestrians and vehicles.

Domain 2: Fall Protection Climber-Rescuer

1. Evaluate and enforce the requirements and use of fall protection.
   a. Anchorage selection
   b. Attachment points
   c. Equipment selection (lanyards, harnesses, connection devices)
   d. Climbing techniques
2. Assessment of advanced skills and techniques used for rescue, including:
   a. Assisted rescue
   b. Self-rescue
   c. Planning
   d. Response
3. Differentiate and apply types of hazards, standards, and inspection requirements of climbing facilities
4. Select anchorage and attachment points
5. Implement the requirements for the safe use and inspection of portable ladders.
6. Determine equipment and hazards associated with controlled descent and develop plan.

Domain 3: Hoisting Equipment and Rigging

1. Demonstrate the selection maintenance and inspection of the different types of hoists and their use (i.e. base mount, man-rated, capstan)
2. Apply the elements of personnel hoisting operation, including roles and responsibilities of crew members, to include but not limited to:
   a. Trial lift
   b. Proof testing
   c. Selection of components
   d. Rigging configuration
   e. Inspection and maintenance
   f. Limitations/requirements
3. Determine and demonstrate the requirements for rigging operations and systems, including but not limited to:
   a. Rigging configurations
   b. Equipment/components/hardware selection and Inspection
   c. Hand signals
   d. Construction (rigging) classifications
   e. Construction (rigging) plans
   f. Cranes

4. Determine and evaluate how the rigging system impacts the structure, including:
   a. Placement/location
   b. Loading (operational and non-operational)
5. Identify, evaluate, demonstrate, and select rope and required maintenance to include:
   a. Knot and hitch types and applications
   b. Rope materials (wire, synthetic, etc.)
   c. End terminations
6. Differentiate between the types/classifications/ configurations of gin poles.

Domain 4: Structures

1. Evaluate and perform a pre-climb inspection.
2. Perform maintenance and condition assessments to identify structural deficiencies, including but not limited to:
   a. Modifications
   b. Visual inspections
   c. Foundations
3. Execute and delegate tasks based on construction drawings, including the ability to select materials.
4. Install, inspect, and repair grounding systems.

Domain 5: Appurtenance Installation and Maintenance

1. Assemble and install appurtenance (antenna/ microwave, climbing facilities)
2. Assess the components and requirements of obstruction lighting systems.
3. Utilize connectors, transmission lines, and components (weatherproofing, hangers etc.).
4. Demonstrate alignment of appurtenances (e., dishes and antennas, azimuth).
5. Install, inspect, and repair grounding systems.
6. Identify and mitigate the hazards and electrical safety requirements of AC and DC electricity.

Domain 6: Equipment/Special Operations

1. Recognize type and requirements for the use of mobile elevating work platforms (e., aerial lifts).
2. Recognize lockout/tagout on the job.
3. Identify and mitigate the hazards associated with:
   a. Batteries
   b. Forklifts
   c. Motorized equipment
   d. Site decommissioning/demolition
   e. Welding/cutting/exothermic welding process
   f. Helicopter
4. Identify the requirements for drone operation.
5. Identify hazards regarding confined spaces.

REFERENCE LIST

TTT-2 examination questions were written by NWSA's subject matter experts. The following list was among reference materials cited as the basis for the exam questions.

Candidates are strongly advised to become familiar with industry standards, practices, and relevant manufacturers' instructions in preparing for the NWSA certification examinations.

TTT-2 Reference Materials

Primary References:

1. **ANSI/ASSE A10.48-2016 Criteria for Safety Practices with the Construction, Demolition, Modification and Maintenance of Communication Structures**

   Order by Internet: http://www.asse.org/ansi/asse-a10-48-2016 criteria-for-safety-practices-with-the-construction-demolition-modification-and-maintenance-of-communication-structures/

2. **Occupational Safety and Health Administration, U.S. Department of Labor, Code of Federal Regulations, Parts 1910 and 1926**

   Download from Internet: http://www.osha.gov/

3. **Occupational Safety and Health Administration, U.S. Department of Labor, Compliance Directive CPL 02-01-056 (2014)**

   Order by Internet: https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=DIRECTIVES&p_id=5994

4. **Motorola Publication R56 – Standards and Guidelines for Communication Sites**

   Download from Internet: www.nws-a.org

5. **ANSI/ASSE Z359 Fall Protection Code**

   Order by Internet: http://www.asse.org/ansi/asse-z359-fall-protection-code-version-3-0-/

6. **ANSI/ASME, B30.26 (2015) – Rigging Hardware**

   Order by Internet: https://www.asme.org/products/codes-standards/b3026-2015-rigging-hardware

7. **ANSI/TIA 222 Revision G: STRUCTURAL STANDARD FOR ANTENNA SUPPORTING STRUCTURES AND ANTENNAS**

   Order by Internet: http://www.tiaonline.org/standards/buy-tia-standards

Secondary References:

1. **American Welding Society - D1.1/D1.1M:2015 STRUCTURAL WELDING CODE—STEEL**

Order by Internet: http://pubs.aws.org/p/1650/d11d11m2015-2nd-printing-structural-welding-code-steel

2. **Federal Aviation Administration - AC 70/7460-1L - Obstruction Marking and Lighting**

   Order by Internet: https://www.faa.gov/regulations_policies/advisory_circulars/index.cfm/go/document.current/documentNumber/70_7460-1

3. **FCC OET Bulletin 65 - Evaluating Compliance with FCC Guidelines for Human Exposure to Radio frequency Electromagnetic Fields**

   Order by Internet: https://www.fcc.gov/general/oet-bulletins-line

4. **U.S. Department of Transportation – Manual on Uniform Traffic Control Devices (2009) with Revisions 1 and 2, May 2012**

   Order by Internet: http://mutcd.fhwa.dot.gov/kno_2009r1r2.htm

5. **NATE - Hoist Operators Educational Requirements Manual**

   Order by Internet: https://natehome.com/safety-education/1893-2/

6. **NATE - RF Awareness Booklet**

   Order by Internet: https://natehome.com/safety-education/1893-2/

7. **NFPA 10: Standard for Portable Fire Extinguishers**

   Order by Internet: http://www.nfpa.org/codes-and-standards/all-codes-and-standards/list-of-codes-and-standards?mode=code&code=10&tab=editions

8. **ANSI/TIA-322, Loading Criteria, Analysis, and Design Related to the Installation, Alteration and Maintenance of Communication Structures (replaces ANSI/TIA 1019-A)**

   Order by Internet: http://www.tiaonline.org/standards/buy-tia-standards

SAMPLE QUESTIONS

The following are sample exam questions typical of the style and content of the questions used in NWSA examinations:

TTT-2 Sample Items

1. Who is qualified to complete a pre-job gin pole inspection?
   a. Authorized climber
   b. Competent rigger
   c. Hoist operator
   d. Project manager
2. What is the MINIMUM required spacing between two 10 ft. ground rods?
   a. 10 ft.
   b. 15 ft.
   c. 20 ft.
   d. 25 ft.
3. What is the fall protection latch mechanism load-rating?
   a. 3,000 lb.
   b. 3,600 lb.
   c. 4,000 lb.
   d. 5,000 lb.
4. What construction (rigging) plan is required for addition or removal for a 200 lb. appurtenance?
   a. Class I
   b. Class II
   c. Class III
   d. Class IV
5. What type of radiation has a cumulative effect over time on the human body?
   a. Infrared
   b. Ionizing
   c. Non-ionizing
   d. RF

Question #	Answer
1	B
2	C
3	B
4	B
5	B

Antenna and Line (A&L) Specialty Exam Details

EXAM OUTLINE

The NWSA Antenna and Line (A&L) Specialty exam examines the following knowledge areas:

Domain 1: Appurtenances

- Approximately 28% of exam

Domain 2: Antenna Systems

- Approximately 29% of exam

Domain 3: Grounding

- Approximately 9% of exam

Domain 4: Transmission Lines and Connectors

- Approximately 12% of exam

Domain 5: Hazards

- Approximately 22% of exam

Domain 1: Appurtenances

1. Verify appurtenance installation Scope of Work (SOW) per existing site conditions/configurations, including:
   a. Obstructed climbing facilities
2. Compare structural analysis to existing conditions
3. Compare construction drawings to existing conditions
4. Assemble per site drawings/OEM, including:
   a. Sector frames
   b. Platforms
   c. Mounts (e.g., RRU, antenna, etc.)
   d. Tiebacks
   e. Ice shields
   f. Wave guide ladder (e.g., cable ladder)
   g. Lightning protection (e.g., grounding system)
   h. Enclosure (e.g., cable management, radio equipment)
   i. AM detuning system
5. Verify installation meets specifications
   a. Validate proper elevations, azimuth, and plumb
   b. Ensure appurtenances do not create nesting of tower obstruction lighting
   c. Ensure AM detuning system is not obstructed and remains functional

Domain 2: Antenna Systems

1. Identify antenna types, including:
   a. Broadcast AM/FM/TV
   b. RADAR
   c. Cellular
   d. Two Way (UHF/VHF)
   e. Microwave
   f. Satellite (VSAT)
2. Verify antenna systems Scope of Work (SOW) per existing site conditions/configurations
3. Compare structural analysis to existing and proposed loading conditions
4. Compare mount analysis to existing and proposed loading conditions
5. Compare construction drawings to existing conditions
6. Verify post installation meets original equipment manufacturers (OEM) specifications
7. Assemble antenna systems per site drawings, including:
   a. Tower mounted amplifiers (TMA)
   b. Remote radio units (RRU), remote radio heads (RRH)
   c. Antennas
8. Validate proper orientation, including:
   a. Azimuth
   b. Electrical/Mechanical down-tilt
   c. Elevation center of radiation (COR)
   d. Plumb
9. Demonstrate knowledge and understanding of testing and troubleshooting results, including:
   a. RF Sweep
   b. Fiber optics
   c. Passive intermodulation (PIM)

Domain 3: Grounding

1. Verify grounding scope of work (SOW)/drawings/specifications per existing site conditions/configurations
2. Ensure OEM specifications are met on installations, including:
   a. Transmission lines
   b. Appurtenance
   c. Common ground ring
   d. Ground bar(s)
   e. Connections/terminations [bonding]
   f. Ice bridge
   g. Tower
   h. Building/entry port

3. Apply terminations, including:
   a. Exothermic welding
   b. Compression

Domain 4: Transmission Lines and Connectors

1. Verify transmissions lines scope of work (SOW)/ drawings/specifications per existing site conditions/ configurations
2. Identify specific types of transmission lines and connectors, including:
   a. Waveguide
   b. Coaxial cable
   c. Hybrid cable
   d. Fiber
   e. Rigid
3. Installation of transmission lines, including:
   a. Waveguide
   b. Coaxial cable
   c. Hybrid cable
4. Installation of appropriate methods, including:
   a. Routing
   b. Bend radius
   c. Hanger spacing
   d. Hoisting grips spacing/attachment
   e. Horizontal to vertical transition (e.g. drip loop)
   f. Line hangers
   g. Connectors
   h. Cable trays

Domain 5: Hazards

1. Ensure scope of work (SOW) installation does not cause damage or create an unmitigated hazard
2. Recognize power/electrical hazards, including:
   a. Deicers (FM/TV)
   b. DC terminations
   c. AM detuning skirts
   d. Lighting systems
   e. Batteries
3. Identify fiber optic hazards
4. Identify existing and potential Radio Frequency hazards, including:
   a. Adjacent structures
   b. Surrounding area
   c. Rooftop
5. Utilize monitoring and detecting devices, including:
   a. RF monitor
   b. Foreign voltage detector
6. Mitigate existing hazards, including:
   a. Electrical
   b. Fiber optic
   c. RF
7. Apply appropriate control methods, including:
   a. Clearances determination
   b. Lockout-tagout
   c. RF protective suits
   d. RF awareness site signage

REFERENCE LIST

The NWSA Antenna and Line Specialty examination questions were written by NWSA's subject matter experts. The following list was among reference materials cited as the basis for the exam questions.

Candidates are strongly advised to become familiar with industry standards, practices, and relevant manufacturers' instructions in preparing for the NWSA certification examinations.

A&L Reference Materials

Primary References:

1. **Occupational Safety and Health Administration, U.S. Department of Labor, Code of Federal Regulations, Parts 1910 and 1926**

   Download from Internet: http://www.osha.gov/

2. **Understanding the RF Path eBook**

   Order by Internet: https://www.commscope.com/Resources/eBooks/

3. **Federal Aviation Administration – AC 70/7460-1L-Obstruction Marking and Lighting with Change 2**

   Download by Internet: https://www.faa.gov/regulations_policies/advisory_circulars/index.cfm/go/document.current/documentNumber/70_7460-1

4. **OET Bulletin 65 – Evaluating Compliance with FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields**

   Order by Internet: https://www.fcc.gov/general/oet-bulletins-line

Secondary References:

1. **ANSI/ASSE A10.48-2016 Criteria for Safety Practices with the Construction, Demolition, Modification and Maintenance of Communication Structures**

   Order by Internet: http://www.asse.org/ansi/asse-a10-48-2016 criteria-for-safety-practices-with-the-construction-demolition- modification-and-maintenance-of-communication-structures/

2. **Commscope – Installation Instructions Bulletin 17800B-JC**

   Download by Internet: https://www.commscope.com/catalog/doc/pdf/3821/HELIAX_Coaxial_Cable.pdf

Advanced Rigging Concepts (ARC) Specialty Exam Details

EXAM OUTLINE

The NWSA Advanced Rigging Concepts (ARC) Specialty exam examines the following knowledge areas:

Domain 1: Participate in pre-job planning and drafting of the construction (rigging) plan

- Approximately 15% of exam

Domain 2: Verify onsite conditions

- Approximately 25% of exam

Domain 3: Perform condition assessments

- Approximately 15% of exam

Domain 4: Execute construction (rigging) plan

- Approximately 40% of exam

Domain 1: Participate in Pre-job Planning and Drafting of the Construction (Rigging) Plan

1. Identify and understand scope of work
2. Identify material to be lifted
3. Conduct initial selection of rigging equipment and components
4. Perform preliminary hazard assessment

Domain 2: Verify Onsite Conditions

1. Confirm pre-job planning accuracy
2. Adjust plan to match actual site and environmental conditions
3. Determine lift anchorage(s) and location(s) for hoist and tag
4. Identify staging and landing area
5. Verify onsite documentation is accurate and complete
6. Verify skillset requirements for project personnel
7. Confirm individual components' safety factors

Domain 3: Perform Condition Assessments

1. Inspect antenna supporting structure
2. Inspect rigging components
3. Inspect hoisting equipment
4. Inspect materials to be hoisted
5. Conduct interim inspections of equipment and rigging components based on project duration
6. Document inspections as required

Domain 4: Execute Construction (Rigging) Plan

1. Confirm and/or calculate the weight of all lifted loads
2. Confirm rigging/tag forces and their effect on the lifting system
3. Verify net load and gross load
4. Monitor operational and non-operational loading
5. Determine the center of gravity of loads to be lifted
6. Determine maximum load angle distance from the center of gravity
7. Calculate sling angle multipliers and horizontal sling angles
8. Identify and verify limitations of the equipment used in the rigging system
9. Determine when to engage Qualified Person(s) / Qualified Engineer(s)
10. Confirm component compatibility
11. Confirmation of communication methods
12. Communicate updates to the construction (rigging) plan to the crew
13. Confirm installation of rigging equipment and components per construction (rigging) plan
14. Conduct proof load / trial lift

REFERENCE LIST

The NWSA Advanced Rigging Concepts Specialty examination questions were written by NWSA's subject matter experts. The following list was among reference materials cited as the basis for the exam questions.

Candidates are strongly advised to become familiar with industry standards, practices, and relevant manufacturers' instructions in preparing for the NWSA certification examinations.

Advanced Rigging Concepts Reference Materials

Primary References:

1. **ANSI/ASSE A10.48-2023: Criteria for Safety Practices with the Construction, Demolition, Modification and Maintenance of Communication Structures**

   Order by Internet: https://my.assp.org/s/standards

Foreman (FOR) Exam Details

EXAM OUTLINE

The NWSA Foreman exam examines the following knowledge areas:

Domain 1: Environmental Health and Safety

- Approximately 17% of exam

Domain 2: Rigging

- Approximately 22% of exam

Domain 3: Quality and Productivity

- Approximately 16% of exam

Domain 4: Leadership

- Approximately 45% of exam

Domain 1: Environmental Health and Safety

1. Ensure vehicles/trailers are safe to operate, including:
   a. Inspections (DOT/OSHA)
   b. Loads are secured on truck/trailer
2. Ensure possession of pertinent Safety Data Sheet (SDS)
3. Verify site access requirements, including:
   a. Log in/log out of the NOC(s)
   b. Migratory birds/protected species
   c. Site security
   d. Check road conditions for site access
   e. Multi-employer issues
4. Ensure equipment to be used has been properly inspected by a competent person, including:
   a. Rigging
   b. PPE
   c. Tools
   d. Scaffolding
   e. Aerial Access
   f. Powered Industrial Trucks
5. Worker sustainability (environmental illness/hazard prevention; maintain worker health & safety requirements), including:
   a. Determine hydration requirements
   b. Check and monitor weather
   c. Continuously monitoring employee conditions
   d. Manage/ensure all safety policies procedures are being followed all day
   e. Human Factors, including:
      i. Fatigue
      ii. Impairment
      iii. Fitness for duty
6. Verify worker certification and/or qualifications
7. Identify and mitigate radio frequency (RF) hazards
8. Develop and implement Job Hazard Assessment/rescue plan, including:
   a. Identify tasks (Scope of Work)
   b. Identify hazards, including:
      i. Perform pre-climb assessment
      ii. Create fall protection plan
      iii. Manage concurrent operations
      iv. Protect against hazardous energy
      v. Confined spaces
      vi. Vehicular traffic
      vii. Hazmat
   c. Implement hazard controls, including:
      i. Signage
      ii. Barricades
      iii. Hot work Plan
      iv. Fall Protection Plan
      v. Site Specific Recuse Plan
      vi. Emergency response capabilities
      vii. Personal Protective Equipment (PPE)
      viii. Maintain housekeeping and organize site
      ix. Lock-out/tag-out
9. Ensure all equipment/property site is secure (i.e. from theft, movement, etc.)

Domain 2: Rigging

1. Review scope of work and determine if Scope of Work is completed
2. Verify construction (rigging) plan is executed as written, including:
   a. Equipment selection
   b. Equipment inspection
3. Review site constructions drawings
4. Identify construction sequence and duration within the scope of work (SOW)
5. Confirm communication methods continue to be effective during rigging operations
6. Identify, create, and manage the site layout/staging
7. Assign work tasks and responsibilities to competent riggers
8. Identify variances to construction (rigging) plan, modify, and document accordingly

9. Verify correct assembly of rigging equipment and load to be lifted
10. De-rig as required
11. Awareness of rigging standards that apply to the SOW, including:
    a. ANSI/ASSE A10.48-2016, including:
        i. Chapter 4.8 – Construction (rigging) plans
        ii. Chapter 8 – Base mounted hoists used for overhead material lifting & personnel lifting
        iii. Chapter 9 – Personnel lifting accessories & processes
        iv. Chapter 10 – Rigging
        v. Chapter 11 – Gin poles & other lifting devices
        vi. Chapter 13 – Structural construction loading considerations
        vii. Chapter 15 – Capstan hoist
        viii. Chapter 17 – Helicopter used for lifting loads
    b. ASME B30.26 Rigging Hardware
    c. Use of Carabiners

Domain 3: Quality and Productivity

1. Review scope of work, construction drawings, and job specifications
2. Verify crew personnel fit the job tasks' needs
3. Perform materials and equipment inventory
4. Perform inventory and review Bill of Materials (BOM)
5. Select tools and equipment for task
6. Check equipment for operability and calibration
7. Compile job photos and documentation, including:
    a. Pre
    b. In-process
    c. Post
8. Verify correct material assembly and installation
9. Plan for next task/day's activities
10. Coordinate required inspections, including:
    a. Building
    b. Electrical

Domain 4: Leadership

1. Supervise workers
    a. Assign work tasks and responsibilities to personnel
    b. Verify personnel on the crew fit the need of the job tasks
    c. Establishing crew communications
    d. Understand and employ effective leadership methodology, including:
        i. Communications
        ii. Motivation
    e. Verify accuracy and timely submission of timekeeping
    f. Communicate stop work authority to employees, including:
        i. Purpose
        ii. Scope
        iii. Procedure/Process
2. Human Resources
    a. Observe and document signs and symptoms of behavioral changes
    b. Ethics & Conduct (e.g., NWSA Code of Ethics)
    c. Understand, communicate, and take appropriate action regarding laws and policies relating to issues, including:
        i. Discrimination
        ii. Harassment
        iii. Hostile work environments
        iv. Retaliation
    d. Professionally expedite answers to human resource questions regarding topics, including:
        i. Insurance
        ii. Worker Compensation
        iii. Family Medical Leave Act (FMLA)
        iv. Grievances
        v. Email policy
        vi. Non-Disclosure information
        vii. Incident reporting procedures
    e. Follow company policy regarding public affairs, including:
        i. News media
        ii. Social media
        iii. Investigators
        iv. Sensitive photography
    f. Document violations of company policies
    g. Understand employers discipline guidelines
    h. Evaluate and communicate to management the employee's knowledge, skills, and abilities
        i. Engage in conflict resolution
3. Compliance
    a. Understand and apply the duties and responsibilities, including:
        i. To the crew
        ii. To the company
    b. Apply DOT regulations
    c. Understand and Apply OSHA regulations, including:
        i. Site signage
        ii. Multi-employer worksite
        iii. General Duty Clause
        iv. Whistleblower Protection Program

d. Ensure possession of permits, authorizations, and licensing for scope of work, including:
   i. Building permits
   ii. Electrical permits
   iii. Contractors and/or electrical licenses
   iv. Notice to proceed (NTP)
e. Develop, review, and communicate emergency action plan
f. Apply environmental, FAA, and FCC regulatory requirements

4. On-the-Job Training
   a. Supervise on-the-job training for crew personnel
      i. Safety
      ii. Scope-specific skillsets
      iii. Equipment operation
      iv. Technical and business documents

REFERENCE LIST

The NWSA Foreman examination questions were written by NWSA's subject matter experts. The following list was among reference materials cited as the basis for the exam questions.

Candidates are strongly advised to become familiar with industry standards, practices, and relevant manufacturers' instructions in preparing for the NWSA certification examinations.

Foreman Reference Materials

Primary References:

1. **ANSI/ASSE A10.48-2016: Criteria for Safety Practices with the Construction, Demolition, Modification and Maintenance of Communication Structures**

   Order by Internet: http://www.asse.org/ansi/asse-a10-48-2016 criteria-for-safety-practices-with-the-construction-demolition- modification-and-maintenance-of-communication-structures/

2. **NWSA Leadership Guide**

   Download from Internet: http://www.nws-a.org/

3. **Occupational Safety and Health Administration, U.S. Department of Labor, Code of Federal Regulations, Parts 1904, 1910 and 1926**

   Download from Internet: http://www.osha.gov/

Secondary References:

1. **Occupational Safety and Health Administration, U.S. Department of Labor, Compliance Directive CPL 02-01-056 (2014)**

   Download from Internet: https://www.osha.gov/sites/default/files/enforcement/directives/CPL_02-01-056.pdf

2. **FCC OET Bulletin 65 – Evaluating Compliance with FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields**

   Order by Internet: https://www.fcc.gov/general/oet-bulletins-line

3. **ANSI/ASME, B30.9 – Slings**

   Order by Internet: https://www.asme.org/products/codes-standards/b309-2018-slings

4. **Hubbell/A.B. Chance Owners' Manual**

   Download from Internet: https://hubbellcdn.com/installationmanuals/P308-0880.pdf

5. **Federal Motor Carrier Safety Administration (FMCSA), Interstate Passenger Carrying Driver's Guide to Hours of Service**

   Download from Internet: https://www.fmcsa.dot.gov/sites/fmcsa.dot.gov/files/docs/Interstate-Passenger-Carrying-Driver-Guide-To-HOS.pdf

6. **U.S. Fish & Wildlife Service (FWS), Communications Towers**

   Download from Internet: https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds/collisions/communication-towers.php

7. **USDOL Heat Index Guide for Employers**

   Download from Internet: https://www.osha.gov/SLTC/heatillness/heat_index/index.html

SAMPLE QUESTIONS

The following are sample exam questions typical of the style and content of the questions used in NWSA examinations:

Foreman Sample Items

1. When should an incident be reported if an employee is injured on a job and requires medical attention beyond first aid?
   a. At the job completion
   b. Before the end of the week
   c. Does not need to be reported
   d. Immediately
2. Who is directly responsible for enforcing OSHA compliance on a work site?
   a. Company safety officer
   b. Foreman designated as Competent Person
   c. Office safety manager
   d. Regional construction manager
3. What is the **MINIMUM** safety factor when the lifted load travels through the overhaul ball?
   a. 2
   b. 4
   c. 5
   d. 10

4. According to the NWSA Leadership Guide, which is an effective path for supporting the professional growth of crew members?
   a. Ask them to find their own training but not during work hours
   b. Communicate that on-the-job training is all they need
   c. Encourage them to pursue training opportunities
   d. Take educational opportunities yourself but do not share knowledge with others
5. According to OSHA, where do you find the regulations regarding Aerial Lifts?
   a. 1926 Subpart L – Scaffolds
   b. 1926 Subpart M – Fall Protection
   c. 1926 Subpart Q – Personal Conveyance
   d. 1926 Subpart O – Motor Vehicles, Mechanized Equipment, and Marine Operations

Question #	Answer
1	D
2	B
3	C
4	C
5	A

NWSA Information Release Policy

A. Definitions

1. "NWSA" means and refers to the National Wireless Safety Alliance acting through its staff and authorized agents and representatives.
2. "Releasable Information" means and refers to the following information: name, certification status, examination dates, certification dates, certification number(s), and designations.
3. "Third Party" means and refers to an employer, prospective employer, regulatory agency, or any other person or entity that makes an inquiry to NWSA.

B. Policies

1. It shall be the policy of NWSA to provide Releasable Information pertaining to individuals who have successfully passed one or more NWSA examinations. It shall also be the policy of NWSA to provide Releasable Information pertaining to such individuals on its website using such protocols as may be established.
2. Releasable Information may be released to a Third Party who makes a written request, including by electronic correspondence. Generally, Releasable Information will be released within one business day from actual receipt of a written request.
3. If a Third Party requests information concerning an individual who has not taken or successfully passed an NWSA examination, NWSA may release a statement confirming that, as of a given date, the individual does not appear on NWSA's list of successful candidates in one or more categories of certification.
4. If an applicant or certificant is under formal sanction, suspension, or revocation by NWSA, then NWSA may release a statement to that effect to any persons and by any reasonable means, including by means of a list published on the NWSA website. In addition, if an individual applicant or certificant is under formal investigation, sanction, suspension, or revocation by NWSA, then NWSA may release a statement concerning the status of the applicant or certificant to any Third Party and to any jurisdiction that requires or accepts NWSA certification as a basis for satisfying requirements to work in the jurisdiction. Any such statement to a Third Party or jurisdiction may identify the applicant or certificant, the certifications affected, the actions taken, and the effective dates of any such actions.
5. If a Third Party seeks information other than the foregoing information, generally, absent a subpoena or similar legal process, such information will not be released. However, in the course of business, as circumstances reasonably warrant, NWSA reserves the discretion to release information other than the foregoing information.
6. Certain situations may require or warrant the immediate verbal confirmation of an individual's certification status or other Releasable Information in response to a written or verbal request. Under such circumstances, NWSA may provide such immediate verbal confirmation, at its discretion. When such a verbal confirmation is provided, it shall be NWSA's policy to follow up with a written confirmation.
7. It shall be the policy of NWSA to discuss score-related and exam-specific matters only with a candidate or a candidate's authorized legal representative.
8. NWSA will release Releasable Information about an individual upon receipt of a written request (including electronic correspondence) from that individual. NWSA may release information other than Releasable Information about an individual, at its discretion, upon receipt of a signed, notarized, written request from that individual. In addition, NWSA will release information other than Releasable Information about an individual when required by a legal authority of competent jurisdiction under a duly-issued subpoena, subject to any objection, or as otherwise required by law.

IMPORTANT CONTACT INFORMATION

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