



CBT TEST OUTLINE

&

KNOWLEDGE DOMAINS 101

National Wireless Safety Alliance
September 19, 2018

Topics

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INTRODUCTION

□ PROGRAM DESCRIPTION

■ **Telecommunications Tower Technician 1:**

An individual who can safely perform tasks on telecommunication sites under direct supervision.

■ **Telecommunications Tower Technician 2:**

An individual who can safely perform tasks on telecommunication sites and is capable of supervision of TTT-1 technicians and trainees.

■ **Computer-Based Tests and Practical Examinations** required to be certified.

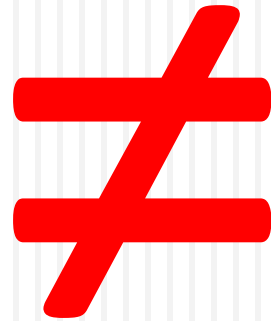
■ **5-year Certification** period.

INTRODUCTION

- NWSA EXAMINATION DEVELOPMENT
 - **Computer-Based Tests (CBT)** developed by industry Task Force of content experts.
 - **Practical Examinations** developed to assess essential skills needed to perform selected operations safely.

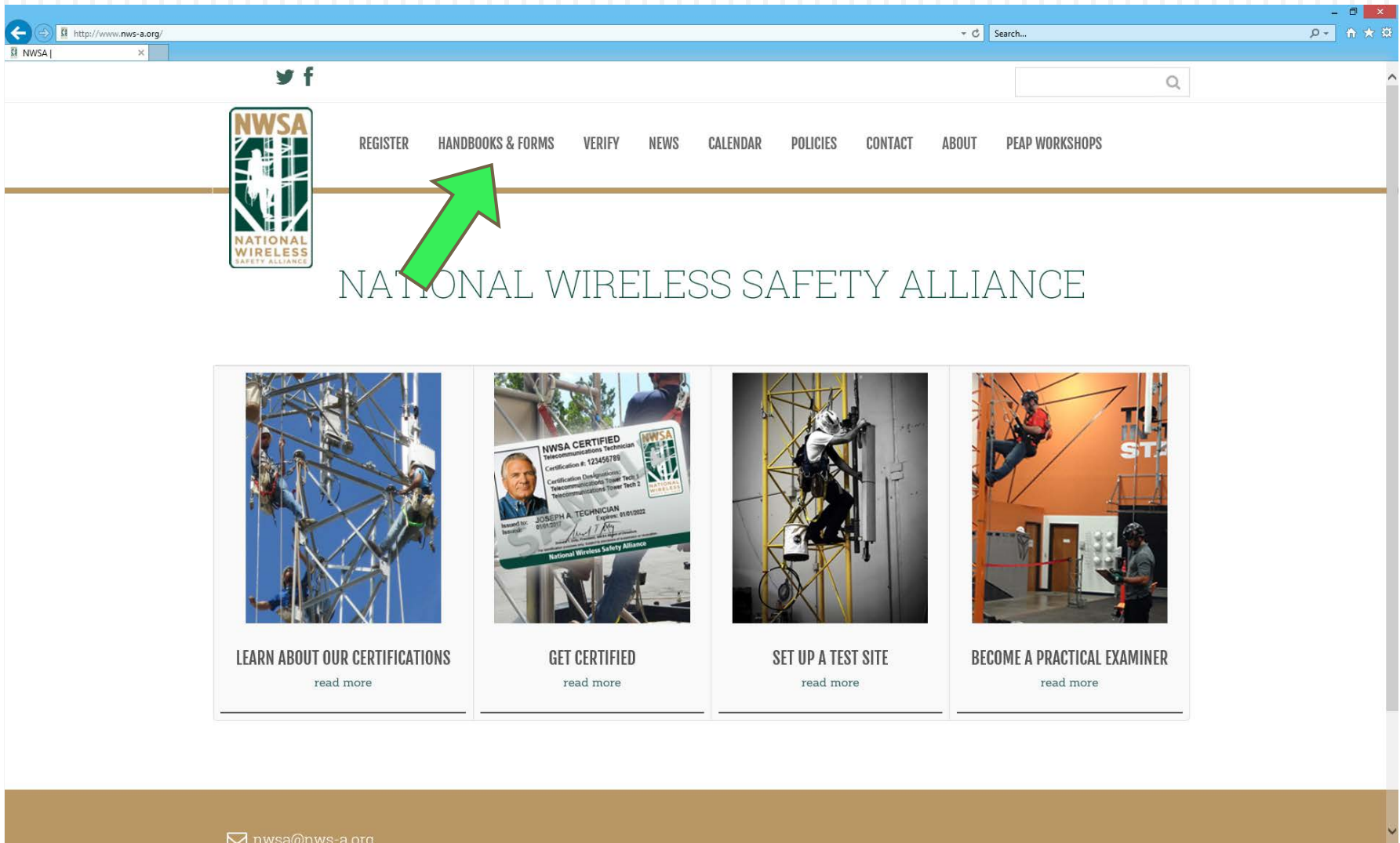
NWSA is *NOT* Training

NWSA



Training

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The screenshot shows the homepage of the National Wireless Safety Alliance (NWSA). At the top, there is a navigation menu with the following items: REGISTER, HANDBOOKS & FORMS, VERIFY, NEWS, CALENDAR, POLICIES, CONTACT, ABOUT, and PEAP WORKSHOPS. A green arrow points to the 'HANDBOOKS & FORMS' link. Below the navigation menu is the NWSA logo, which features a stylized tower and the text 'NWSA NATIONAL WIRELESS SAFETY ALLIANCE'. Underneath the logo, the text 'NATIONAL WIRELESS SAFETY ALLIANCE' is displayed in a large, green, serif font. The main content area is divided into four columns, each with a representative image and a call-to-action:

- LEARN ABOUT OUR CERTIFICATIONS** (with a 'read more' link) - Image: Workers on a tower.
- GET CERTIFIED** (with a 'read more' link) - Image: A person holding a 'NWSA CERTIFIED Telecommunications Technician' certificate for Joseph A. Technician.
- SET UP A TEST SITE** (with a 'read more' link) - Image: A worker on a tower.
- BECOME A PRACTICAL EXAMINER** (with a 'read more' link) - Image: A worker on a tower.

At the bottom of the page, there is a footer with the email address nwsa@nws-a.org.

Candidate Handbook

Website:

www.NWS-A.org



**NATIONAL WIRELESS
SAFETY ALLIANCE**

CANDIDATE HANDBOOK

■ TELECOMMUNICATIONS TECHNICIAN

- **Telecommunications Tower Technician 1 (TTT-1)**
- **Telecommunications Tower Technician 2 (TTT-2)**

TTT-1 CBT Test Outline

□ **TTT-1 Knowledge Domains**

- **Domain 1: Job Logistics** - Approximately 19% of test
- **Domain 2: Climbing** - Approximately 30% of test
- **Domain 3: Hoisting Equipment and Rigging** - Approximately 11% of test
- **Domain 4: Structures** - Approximately 10% of test
- **Domain 5: Appurtenance Installation and Maintenance** - Approximately 17% of test
- **Domain 6: Equipment/Special Operations** - Approximately 13% of test

JOB LOGISTICS

- ❑ Understand the activities and hazards of the worksite.
- ❑ Know and understand the requirements for daily meetings and forms.
- ❑ Awareness of ongoing site conditions.
- ❑ Know how to orient, read and interpret assembly drawings.
- ❑ Awareness of basic RF radiation.
- ❑ Know how to inspect, care for, and use the appropriate PPE.
- ❑ Awareness of traffic control requirements and equipment for work on or near a roadway.

CLIMBING

- Understand the requirements and use of fall protection in telecommunications.
- Understand the basic knowledge and skills required to perform rescue at height, including:
 - ▣ Assisted Rescue
 - ▣ Self-Rescue
- Understand the standards regarding climbing facilities, such as anchorages and attachment points.
- Know the requirements for the safe use and inspection of stairs and portable ladders.
- Ability to identify tools and hazards associated with controlled descent.

HOISTING EQUIPMENT & RIGGING

- Know requirements for the inspection/use of a base mounted hoist.
- Know requirements for inspection/use of a capstan hoist.
- Know requirements for inspection/use of a man-rated hoist and requirements/regulations for personnel lifting.
- Know the elements of personnel platform operation.
- Know requirements for tower-specific rigging operations.
- Know how the rigging affects the structure.
- Know how to identify and apply ropes and knots in the appropriate application required for the job.
- Know the requirements for the inspection/use of gin poles.

STRUCTURES

- Know how to safely approach communication structures and perform a job hazard assessment prior to climbing.
- Know how to identify the types and characteristics of structures including Guyed, Self-Supporting and Monopole
- Awareness of the tools, means and methods for routine maintenance and tower modification tasks.
- Awareness of applicable standards and specifications for the visual inspection of structures.
- Awareness of potential discrepancies in foundations.
- Awareness of construction drawings, including the ability to identify materials by Types, Size, Quantity and Sequence of assembly
- Awareness of grounding systems.

APPURTENANCES

- ❑ Know how to prepare, assemble and install antenna/microwave equipment.
- ❑ Know how to install antenna mounts.
- ❑ Know how to prepare, assemble, and install working facility.
- ❑ Know how to identify the components of tower lighting systems.
- ❑ Know how to install connectors on cable/fiber.
- ❑ Know how to utilize hoisting grips.
- ❑ Awareness of methods used to isolate and locate faults in various components and connectors.

APPURTENANCES (cont'd)

- Know how to adjust tilt and azimuth of dishes/antennas.
- Know how to identify/determine the tools, material and methods necessary to remove and install weatherproofing on various types of cables and connectors.
- Know how to identify and use the tools and materials necessary for the installation of ground systems.
- Understand the hazards and electrical safety requirements of AC and DC electricity.
- Awareness of the type, purpose and maintenance requirements of Tower Mounted Equipment (TME).
- Know how to identify coax color coding and its purpose.

EQUIPMENT/SPECIAL OPERATIONS

- ❑ Know how to safely work in/around aerial work platforms.
- ❑ Know how to identify harmful sources of energy and how to apply lockout/tagout on the job.
- ❑ Know how to identify, safely handle and transport batteries.
- ❑ Know how to safely work in/around forklifts and other equipment.
- ❑ Know and understand the types of equipment used and know the safety procedures related to tower demolition.
- ❑ Know and understand the equipment, procedures and techniques associated with welding, cutting and other hot work.

EQUIPMENT/SPECIAL OPERATIONS

(cont'd)

- Know how to identify the requirements of exothermic welding process.
- Know and understand the type of equipment used and know the safety procedures related to appurtenance decommissioning.
- Knowledge of jumper support and spacing.
- Know how to properly use RF monitors.

Candidate Handbook

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**NATIONAL WIRELESS
SAFETY ALLIANCE**

CANDIDATE HANDBOOK

■ TELECOMMUNICATIONS TECHNICIAN

- **Telecommunications Tower Technician 1 (TTT-1)**
- **Telecommunications Tower Technician 2 (TTT-2)**

CBT REFERENCE LIST: TTT-1

- **TTT-1**
 - ANSI/ASSE A10.48-2016
 - OSHA 29CFR1910 and 1926
 - ANSI/ASSE Z359
 - IEEE C95.7-2014
 - ANSI/TIA 222 Revision G
 - Motorola Publication R56
 - NATE - RF Awareness Booklet
 - NFPA 70E
 - ANSI/ASSE A10.32-2012



HANDBOOKS & FORMS



HANDBOOKS

NOTE: You must have the [Acrobat Reader](#) to view the following PDF files. After you download and install a copy, return to this page and click on the links below.

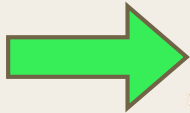
Please select the forms you wish to download. All candidates should receive a copy of the entire Candidate Handbook before applying.

NWSA Candidate Handbooks and Forms

- [Telecommunications Technician Candidate Handbook](#) (10/17)
- [Telecommunications Technician Practical Exam Candidate Application Form](#) (10/17)
- [Reference List](#) (10/17)

NWSA Practical Examiner and Test Site Coordinator Handbooks and Forms

- [CRT Online Exam Application Instructions](#) (03/18)





REFERENCE LIST

TTT-1 AND TTT-2

TTT-1 and TTT-2 examination questions were written by NWSA's subject matter experts. A complete list of reference materials cited as the basis for the exam questions is available in the Candidate Handbook.

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:

- ANSI/ASSE A1048-2016 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-ofcommunication-structures/>
- 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/>
- ANSI/ASSE Z359 Fall Protection Code
Order by Internet: <http://www.asse.org/ansi/asse-z359-1-2016-the-fall-protection-code/>
- 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/oetbulletins-line>
- 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>

Secondary References:

- Motorola Publication R56 - Standards and Guidelines for Communication Sites
http://www.nws-a.org/wp-content/uploads/2018/05/Motorola_R56_2005_manual.pdf
- NATE - RF Awareness Booklet
Order by Internet: <https://natehome.com/safety-education/1893-2/>
- 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>
- 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/>

Questions?

Please direct inquiries to:

NWSA@nws-a.org

Thank You