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ELECTRICAL SYSTEMS
Wage Grade Series
2805/2810/2604/2606/2608/2610

CAREER FIELD EDUCATION AND TRAINING PLAN

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Attachments

OPR: AFCEC/COF
Certified by: Mr. Charles Meshako, Civil Engineer Career Field Manager
Supersedes CFETP3E0X1WG Dated 1 Aug 2018

PART I

Preface

This Career Field Education and Training Plan (CFETP) is a comprehensive education and training document that identifies life-cycle education/training requirements and training support resources for all Electrical Technicians working in a Wage Grade series. The CFETP will provide Wage Grade personnel with a clear career path to success and instill rigor in all aspects of our Job Series training.

The CFETP consists of two parts used by the supervisor to plan, manage, and control training within the job series.
Part I includes the following:
• **Section A** provides general information about how the CFETP will be used.
• **Section B** identifies job series progression information, duties and responsibilities, training strategies, and the job series path.

Part II includes the following:
• **Section A** identifies the Group Series Training Standard (GSTS) to include duties, tasks, and technical references to support Wage Grade training programs.
• **Section B** identifies available support materials.
• **Section C** identifies a training course index supervisors can use to determine resources available to support training. Included here are both mandatory and optional courses, and exportable courseware.

Using guidance provided in the CFETP will ensure individuals in Electrical Wage Grade series receive effective and efficient training at the appropriate point in their careers. This plan will enable us to train today's work force for tomorrow's jobs. At the unit level, supervisors and trainers must use Part II to identify, plan, and conduct training commensurate with the overall goals of this guide and the local mission.

ABBREVIATIONS EXPALAINED

Air Force Civilian Career Field Manager (AFCCFM). An individual on the Air Staff charged with the responsibility for overseeing all training and career field management aspects of multiple Air Force job series in a functional area.

Air Force Civil Engineer Center (AFCEC). The focal point for all Civil Engineer training development. All Civil Engineer Force Development Managers (FDMs) are located at AFCEC.

Air Force Institute of Technology (AFIT). Provides vital, relevant, and connected education that enables Airmen to be ready engineers and great leaders who know how to build sustainable installations to last while leading the change for the Civil Engineer career field. Course list can be accessed at: https://www.afit.edu/ce/

Air Force Wage Grade Series Qualification Standard (AFWGSQS). A comprehensive task list that describes a particular series or duty position. Used by supervisors to document task qualifications. The tasks on the AFJQS are common to all persons serving in the described duty position.

Air Force Qualification Training Package (AFQTP). An instructional package designed for use as a training resource to qualify, or aid qualification, in a duty position or program, or on a piece of equipment. AFQTPs identify the Air Force's standardized method for performing the task. The AFQTP may be printed (paper-based), computer-based, in other audiovisual media formats, or all three.

Career Development Course (CDC). Self-paced, correspondence course published to provide the information necessary to satisfy the career knowledge component of on-the-job training (OJT). These courses are developed from references identified in the CFETP. CDCs will contain information on basic principles, techniques, and procedures common to a military AFSC or civilian job series. They do not contain information on specific equipment or tasks unless best illustrating a procedure or technique having utility to the entire career field.

Career Field Education and Training Plan (CFETP). A comprehensive, multipurpose document encapsulating the entire spectrum of education and training for various wage grade series. It outlines a logical growth plan that includes training resources and is designed to make job series training identifiable, to eliminate duplication, and to ensure this training is budget defensible.

CE Career Field SharePoint. Contains information on leadership courses and civilian tuition assistance for degree programs. Can be found at:
https://usaf.dps.mil/sites/10016/Federal%20Wage%20System/Forms/AllItems.aspx?viewpath=%2Fsites%2F10016%2FFederal%20Wage%20System%2FForms%2FAllItems%2Easpx

Civilian Training Home Page (myPers). Contains descriptions and requirements for several civilian training opportunities such as degree programs and civilian leadership courses. This page can be found at: https://mypers.af.mil/app/answers/detail/a_id/41427/p/2/p/2

Commercial Off the Shelf (COTS). Commercially procured training products or in resident vendor training.

Computer-Based Training (CBT). A self-paced stand-alone computer product used to deliver interactive subject and task knowledge.

Core Tasks. Mandatory tasks which the AFCCFM has identified as a minimum qualification requirement within a job series or duty position. These tasks are derived from the Standard Core Personnel Document (SCPD) for each Job Series.

Distance Learning (DL). Includes Video Tele-seminar (VTS), Video Tele-training (VTT), and CBT. Formal courses that a training wing or a contractor develops for export to a field location (in place of resident training) for trainees to complete without the on-site support of the formal school instructor. For instance, courses are offered by Air Force Institute of Technology, Air University, and Training Detachments.

DoD Civilian COOL: On-line source for civilian credentialing opportunities located at: http://dod-civ-cool-review.s3.amazonaws.com/index.htm

Duty Position Tasks. Tasks identified by the work center supervisor as critical and common training tasks needed for the duty position and mission accomplishment.

Enlisted Professional Military Education (EPME). EPME provides a continuum of learning through progressive courses concentrated on developing Military and Civilian Airmen. EPME plays a vital role in preparing Civilian Airmen for increased supervision, leadership, and management challenges. The three levels of Air Force EPME are Airman Leadership School, Noncommissioned Officer Academy and Air Force Senior Noncommissioned Officer Academy. All levels of EPME are available to Wage Grade civilians. Information about enlisted PME can be found at: https://www.airuniversity.af.edu/

Education & Training Course Announcements (ETCA). Web platform, which contains descriptions, requirements, and reporting procedures for in resident Air Force courses. This is located at: https://usaf.dps.mil/teams/app10-etca/SitePages/home.aspx

Functional Advisory Council/Wage Grade Panel. The Wage Grade Panel is one of the three panels that make up the Civil Engineer Functional Advisory Council (FAC). The Wage Grade Panel charter is to work issues, develop policy, and provide recommendations to the FAC on matters related to civilian Wage Grade requirements. The Wage Grade Panel works through the FAC, in service to the CE Total Force community.

Group Series Training Standard (GSTS). Describes skills and knowledge that FWS Employees in a particular job series need on the job and for future career development opportunities. It further serves as the overall training requirements for a Wage Series taught in the resident and nonresident courses.

MilUniversity. This is a supervisor and employee resource center where FWS employees can get information about development opportunities as well as mentoring resources, a leadership library and live mentoring events. This site can be found at: https://www.milsuite.mil/university/clds/

myLearning. Anytime, anyplace learning within DoD consisting of instructional modules comprised of sharable content objectives in an Internet/Intranet environment. This can be found at: https://lms-jets.cce.af.mil/moodle/

On-the-Job Training (OJT). Hands-on, over-the-shoulder training conducted to certify personnel in job qualification (duty position certification) training.

Proficiency Training. Additional training, either in-residence, advanced/supplemental training courses, or on-the-job training provided to personnel to increase their skills and knowledge beyond the minimum.

Red Vector. Commercial web-based training available free of charge to CE employees. Courses are effective for certification renewal and earn Continuing Educations Units (CEUs). Site can be found at: http://afcec.redvector.com/lpe/course/search/b2b

Regional Training Site (RTS). Total Force training centers managed by the Air National Guard. These sites offer training on specialized military equipment and are available to civilians who require training for local mission needs. Training can be coordinated through the FWS Force Development Team at AFCEC/COF.

Resource Constraints. Resource deficiencies, such as money, facilities, time, manpower, or equipment that precludes desired training from being delivered.

Total Force. All collective Air Force components (Active Duty, Reserve, Guard, and Civilian elements) of the United States Air Force.

Vendor Training. Training provided to the Air Force by a third party. Typically, a private vendor in the private sector not affiliated with the Department of Defense. Vendor training can be in the form of Web-Based Training, Computer-Based Training, or in resident training at a temporary duty location or even hosted on an Air Force installation.

Wage Grade Series Training. A mix of formal training (technical school) and informal training (on-the-job) to develop, maintain and enhance wage grade series specific technical skills.

Web-Based Training. A form of Distance Learning. The term Web-Based just means the training is online and requires access to the internet in addition to the actual course content.

Section A – GENERAL INFORMATION

A1. Purpose. The CFETP is designed to be a tool for supervisors to use in assessing the skill level of current and new employees. The CFETP may be used to document training and proficiency of the employee on associated task/s by the supervisor or certified trainer.

A1.1. Column 1 (*Tasks, Knowledge, and Technical References*). Lists the most common tasks, knowledge, and supporting technical references (TR) necessary for Civilian Airmen to perform duties in the Apprentice, Journeyman, Craftsman, and Supervisor level.

A1.2. Column 2 (*Tasks*). Identifies tasks that have a Core and/or Certification, Civilian Deployment, or Special Experience Identifier (SEI) requirement.

A1.3. Column 3 (*Certification of Training*). Used to record completion of tasks and knowledge training requirements. Task certification requires the task to be trained by a trainer designated by the supervisor. The trainer can be either civilian or military. Use the automated training record application to document individual qualifications. The training start and completion date are documented, the task is signed by the trainee and either the work center supervisor, a Master Sergeant (or above) or the unit training manager. This action will complete the task certification.

Note: The "trainer" signing the record MUST be the work center supervisor, work leader, a Master Sergeant (or above) or the Unit Training Manager. This person does not necessarily train the task but will ensure the training is conducted by a qualified trainer prior to completing task certification.

Note: If a work center supervisor, Work Leader, a Master Sergeant (or above) or the unit training manager are not available in a shop or unit to certify a task, the Operations Flight deputy commander will designate a certifier within the flight.

A1.4. Column 4 (*Tasks and Proficiency Codes*). Identifies duty position tasks (series training requirements) with a proficiency code and indicates training requirements. It shows

the proficiency to be demonstrated on the job by the employee as a result of hands-on training on the task, knowledge and the career knowledge provided by formal courses, CDC, distance learning (DL) web-based training (WBT) and AFQTPs. CDC listing maintained by the unit education and training manager for current CDC listings.

A1.5. Qualitative Requirements. Contains the proficiency code key used to indicate the level of training and knowledge provided by CBT, WBT, COTS, in-resident training, and career development courses.

A1.6. Job Qualification Standard (JQS). The Group Series Training Standard (GSTS) becomes the JQS for OJT when entries are made in the GSTS. For OJT, the tasks in Column 1 are trained and qualified to the go/no go level. "Go" means the individual can perform the task without assistance and meets local requirements for accuracy, timeliness, and correct use of

A2. Uses. Managers and supervisors may use the plan at all levels to ensure comprehensive and cohesive training programs are available for each individual in the wage grade series.

A2.1. Wage Grade Panel of the Functional Advisory Council will develop/revise formal resident, non-resident, field, and exportable training based on requirements established by the users and documented in Part II of the CFETP. They will also work with the Air Force Civil Engineer Center Force Development Division (AFCEC/COF) to develop acquisition strategies for obtaining resources needed to provide the identified training.

A2.2. The Wage Grade Panel along with the Force Development Managers, will ensure their training programs complement the CFETP training requirements and identify requirements that can be satisfied by OJT, resident training, contract training, or exportable courses.

A2.3. Supervisors will guide each individual through completion of training specified in this plan.

A2.4. Each individual completes training requirements specified in this plan. The list of courses in Part II of this CFETP will be used as a reference to support training.

A3. Coordination and Approval. The Wage Grade Panel Chairs are the approval authority for the CFETP. The Wage Grade Panel along with the Force Development Managers will identify and coordinate on wage grade series training requirements. Using the list of courses in Part II, they will eliminate duplicate training.

A4. HQ USAF/A4C will review this CFETP annually and make updates and changes as deemed appropriate. Please send recommended changes to the AFCEC/COF Training Support Section at DSN 523-6879 or comm. 850-283-6879 or email afcec.ce.training@us.af.mil.

Section B – WAGE GRADE PROGRESSION AND INFORMATION

B1. Series Descriptions. See each individual's Standard Core Personnel Document for the description.

B1.1. Wage Grade Series Summary: Installs, inspects, maintains, troubleshoots, repairs, and modifies high and low voltage (above and below 600 volts), electrical distribution systems and components; airfield lighting systems; fire alarms and complies with environmental and safety regulations and practices. Related DoD Occupational Subgroup: 172100.

B2. Skill and Career Progression. Adequate training for progression from the apprentice to the mechanic level, and possibly into a supervisory position play an important role in the Air Force's ability to accomplish its mission. It is essential everyone involved in training do their part to participate in, plan, manage, and conduct effective training. The guidance provided in this part of the CFETP will identify viable training at appropriate points in an individual's career.

B2.1. Apprentice/Helper (A/H).

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B2.1.1. Upon completion of initial skills training, an employee may work with a trainer to enhance their knowledge and skills to perform at the highest attainable level within their series.

B2.1.2. Utilize the Career Development Course (CDC) and other exportable courses for subject and task fundamentals in the series.

B2.1.3. Encourage apprentice/helpers to continue academic education and begin EPME by enrolling in Airman Leadership School either in-residence or by correspondence course.

B2.2. Journeyman (J).

B2.2.1. Journeymen may continue to advance their skills by completing additional training. Upon completing training, they may be assigned job positions such as team leader, trainer, or task certifier. Journeymen can pursue leadership training and skills in order to qualify for potential advancement to Work Leader or Work Supervisor positions.

B2.2.1. Encourage journeyman to enroll in the Noncommissioned Officer Academy (NCOA) either in-residence or by correspondence course.

B2.3. Craftsman (C).

B2.3.1. Craftsmen may continue to advance their skills by completing additional training. They may be assigned job positions such as team leader, trainer, or task certifier Craftsmen are encouraged to pursue leadership training and skills in order to qualify for potential advancement to Work Leader or Work Supervisor positions.

B2.3.2. Encourage craftsmen to continue academic education and complete Noncommissioned Officer Academy (NCOA) either in-residence or by correspondence course, civilian leadership courses and degree programs.

B2.3.3. Master Craftsman are typically graded higher than WG-10 where skills, knowledge and abilities require higher technical abilities than standard craftsmen. They are duty/location specific and not for all job series.

B2.4. Work Leader (WL).

B2.4.1. Work Leaders are expected to perform limited functions of a First Line Supervisor or act as a Team Lead.

B2.4.2. Completion of AFIT Civilian Supervisors Course (WMGT 571) is highly encouraged.

B2.4.3. Should pursue increased knowledge of budget, manpower, resources, and personnel management.

B2.4.4. Recommend pursuit of additional higher education and completion of courses outside of their job series for career broadening opportunities.

B2.4.5. Encourage Work Leaders to continue academic education and complete Noncommissioned Officer Academy (NCOA) either in-residence or by correspondence course, civilian leadership courses and degree programs.

B2.5. First Line Supervisor.

B2.5.1. A supervisor can be expected to fill positions such as the Element Chief or Special Projects Supervisor.

B2.5.2. Must enroll and complete required mandatory supervisor or manager training courses within 1 year of appointment to a supervisory or managerial position and complete experience training every 3 years, thereafter.

B2.5.3. Completion of AFIT Civilian Supervisors Course (WMGT 571) is highly encouraged.

B2.5.4. Should pursue increased knowledge of budget, manpower, resources, and personnel management.

B2.5.5. Recommend pursuit of additional higher education and completion of courses outside of their job series for career broadening opportunities.

B2.5.6. Encourage supervisors to continue academic education and complete Senior Noncommissioned Officer Academy (SNCOA) by correspondence, civilian leadership courses and degree programs.

B3. Correspondence Course Directions. Nonresident attendance for professional military education courses is accomplished through the Air Force Portal.

B3.1. Login to the AF Portal https://www.my.af.mil/.

B3.2. Copy and paste the URL https://www.airuniversity.af.edu/GCPME/ into your browser.

B3.4. "Distance Learning" tabs are on the right-side menu.

B3.5. Select the appropriate course.

B4. In-Resident Enlisted Professional Military Education (EPME). Scheduling enlisted professional military education for civilian personnel is a responsibility of AFPC/DP3DW unless otherwise noted. See DAFI 36-2670 Total Force Development, for more detailed information.

B4.1. Airman Leadership School (ALS). Airman Leadership School resident attendance is scheduled by the local Airman Leadership School commandant. Commandants build an annual schedule shortly after the staff sergeant (E-5) promotion release. Eligible Air Force and Department of Defense civilians are considered priority 3 for ALS. DAFI 36-2670 encourages ALS leadership to the extent possible, distribute Priority 2 and 3 students throughout the year to maximize diversity in the classroom.

B4.2. Noncommissioned Officer Academy (NCOA). Selection and scheduling are accomplished by AFPC/DP3DW. Eligible Air Force and Department of Defense civilians are considered priority 3 for NCOA and are considered on a space available basis.

B4.3. Senior Noncommissioned Officer Academy (SNCOA). Selection and scheduling are accomplished by AFPC/DP3DW and is driven by the senior master sergeant (E-8) promotion release. Eligible Air Force and Department of Defense civilians are considered priority 4 for SNCOA and are considered on a space available basis.

B5. Career Building Blocks (CBBs) and Continuous Development Framework Model.

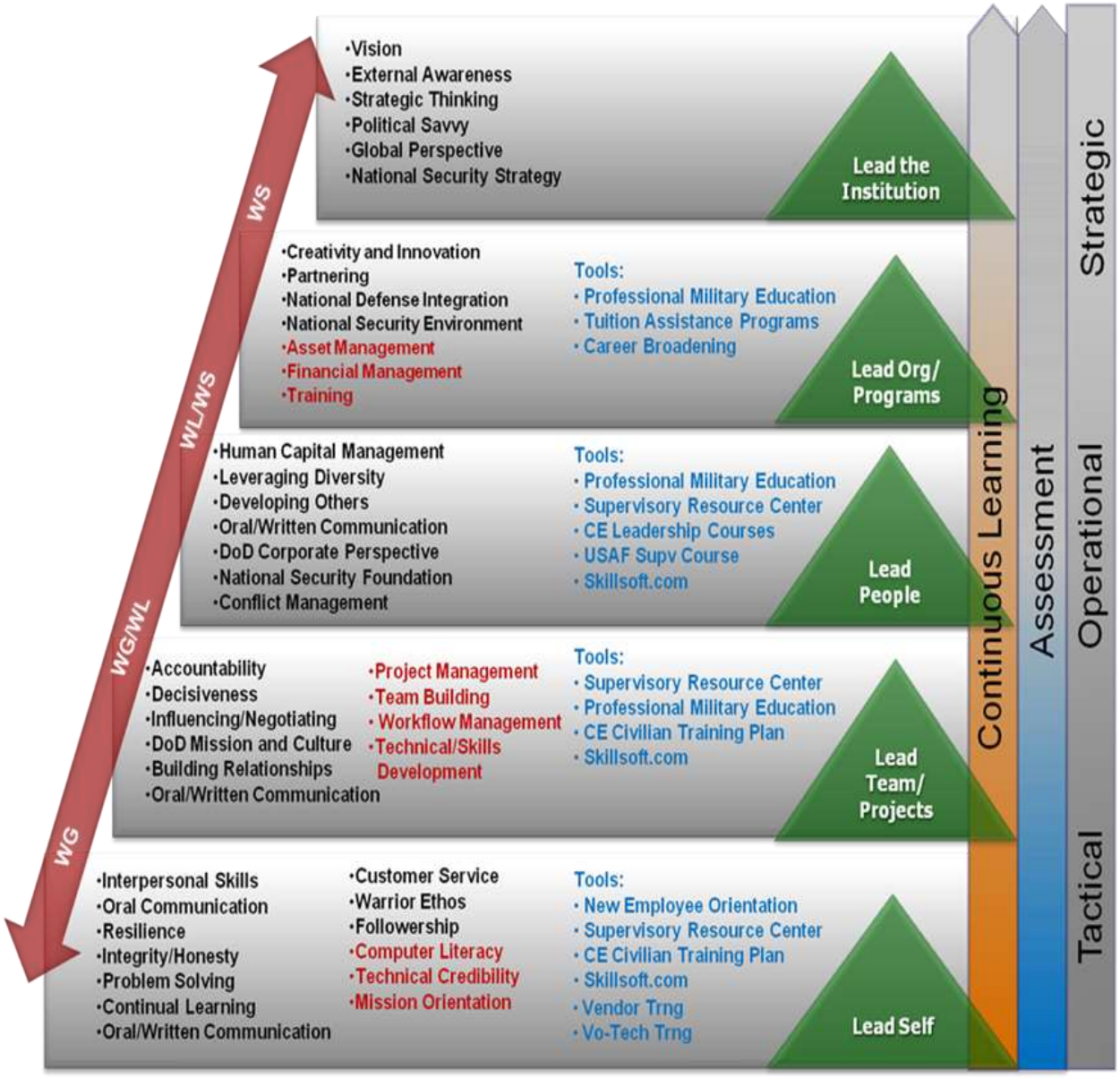
B5.1. The Career Building Blocks illustrate the dispersion of grades and relative experience levels (apprentice, journeyman, craftsman). As you progress through the grades, so should your breadth of experience. This not only includes technical experience, but leadership, supervisory and management experience as well. Using various on-the-job training, military, and civilian vocational schools, and PME, forms the foundation of the CBBs and the "Develop Exceptional Leaders" portion of the strategic vision in the CE Human Capital Road Map.

B5.1.1. The Wage Grade Career Building Blocks (CBBs) are an illustration or an example of your individual development plan or career path. Your individual roadmap may be different than others based on your occupational series and/or career path. The CBBs provide a few examples of development opportunities at the tactical, operational, and strategic levels of performance. Follow this link to see the CBBs for your job series.

https://usaf.dps.mil/sites/10016/Career%20Building%20Blocks/Forms/AllItems.aspx

B5.1.2. Once you have established your career goals, identify a mentor to help you align your steps in this learning and development continuum. A mentor can help you identify different kinds of experience and training you will need as well as the tools to attain them. Mentors also serve as a sounding board and can help you reassess or adjust your career goals when events in your life or career necessitate changes. As you complete these steps and move toward your career goals, it is important to reassess your goals. Once this is accomplished, you and your mentor will be able to further your progression and advancement through the continuous development framework model. See Figure 1 below for the Continuous Development Framework Model.

Figure 1.


WS
WL/WS
WG/WL
WG
·Vision
·External Awareness
·Strategic Thinking
·Political Savvy
·Global Perspective
·National Security Strategy
Lead the Institution
·Creativity and Innovation
·Partnering
·National Defense Integration
·National Security Environment
·Asset Management
·Financial Management
·Training
Tools:
· Professional Military Education
· Tuition Assistance Programs
· Career Broadening
Lead Org/ Programs
·Human Capital Management
·Leveraging Diversity
·Developing Others
·Oral/Written Communication
·DoD Corporate Perspective
·National Security Foundation
·Conflict Management
Tools:
· Professional Military Education
· Supervisory Resource Center
· CE Leadership Courses
· USAF Supv Course
· Skillsoft.com
Lead People
·Accountability
·Decisiveness
·Influencing/Negotiating
·DoD Mission and Culture
·Building Relationships
·Oral/Written Communication
·Project Management
·Team Building
· Workflow Management
·Technical/Skills Development
Tools:
· Supervisory Resource Center
· Professional Military Education
· CE Civilian Training Plan
· Skillsoft.com
Lead Team/ Projects
·Interpersonal Skills
·Oral Communication
·Resilience
·Integrity/Honesty
·Problem Solving
·Continual Learning
·Oral/Written Communication
·Customer Service
·Warrior Ethos
·Followership
·Computer Literacy
·Technical Credibility
·Mission Orientation
Tools:
· New Employee Orientation
· Supervisory Resource Center
· CE Civilian Training Plan
· Skillsoft.com
· Vendor Trng
· Vo-Tech Trng
Lead Self
Continuous Learning
Assessment
Strategic
Operational
Tactical

PART II

Section A – GROUP SERIES TRAINING STANDARD

A1. Implementation. This STS is used for technical training provided by AETC, OJT and COTs training documentation.

A2. **Purpose.** As prescribed in DAFI 36-2670, *Total Force Development*, DAFMAN 32-1001, *Civil Engineer Federal Wage System Force Development* and in collaboration with the AFCCFM, this STS is mandatory for all FWS job series working under the Air Force Specialty Code 3E0X1, regardless of duty assignment. Each employee must use an automated training record.

A2.1. Column 1 (*Tasks, Knowledge, and Technical References*). Lists the most common performance and knowledge requirements necessary for an employee to perform successfully in their job series. The required behaviors will be used as the context for which learning will be assessed.

A2.2. Column 2 (*Core Tasks*). Tasks identified by the AFCCFM or shop foreman as mandatory for each duty position in a job series at their location.

A2.2.1 Column 2 (*Deployment/SEI).* Tasks identified as mandatory for employees who perform roles in Mission Critical, Mission Essential or have been identified for a civilian deployment tasking.

A2.3. Column 3 (*Provides Certification for OJT).* Used to record completion of each training requirement. Use the automated training system to document qualifications.

A2.3.1. Task certification of core and critical tasks. Require a training completion date and initials of the trainee, trainer, and a certifier. All non-core tasks require training completion date and initials of the trainee and trainer only.

A2.3.2. Performance Standard. All training requirements are trained and qualified to the "Go" level. "Go" means the individual can perform the task without assistance and meets local demands for accuracy, timeliness and, if applicable, correct use of procedures and Technical Orders.

A2.4. Column 4 (*Codes Used to Indicate level of Training*). Indicates whether the task is a Knowledge (K), Performance (P) or Performance and Knowledge (PK). Codes are provided in columns labeled for each level experience. These are labeled A/H for

Apprentice/Helper, J for Journeyman, C/WL for Craftsman or Work Leader and S for Supervisor.

A2.5. Job Qualification Standard (JQS). The STS becomes a JQS for OJT when placed in an automated training application and used according to DAFI 36-2670, *Total Force Development* and DAFMAN 32-1001 *Civil Engineer Federal Wage System Force Development*. QTPs are available on myLearning to ensure that all supervisors use standardized procedures for training. When used as a JQS, the following requirements listed below apply.

A2.5.1. Documentation. Document and certify completion of training.

A2.5.1.1. Duty position. Requirements for each duty position (task group) will be developed and identified by the work center supervisor and loaded into the automated training management application. Completion of the identified tasks are mandatory for all duty positions. Ensure the correct duty position title is listed in the Profile section of the trainee's automated training record.

A2.5.1.2. AFQTP Training and Documentation. AFQTPs have been created for several task groups to fulfill performance (P) and knowledge (K) requirements for upgrade/qualification training. Each AFQTP provides the step–by–step procedures for the trainee, trainer, and certifier in completing each.

A2.5.1.2.2. Hands-On Training. For performance (P) training requirements, *DO NOT* sign off the tasks in the JQS until the trainee has completed hands-on/certification training.

A2.5.2. Transcribing from previous versions to new CFETP. The UETM and supervisor must conduct a review of the new STS to identify any new tasks and add those tasks to their unit specific duty positions.

A2.5.2.1. Previous training certification not listed. If previous training certifications are not listed in the individual training record, select the task to be transcribed, and click on the transcribe button. Enter the date of the original certification and sign off the task(s). The trainee will then sign off the task(s) to finalize the transcription of previous training certification. The automated application will place an entry into the trainee 623a and must be acknowledged by the transcriber and trainee.

A2.5.2.2. Transcribing external training certification. If a trainee attended a formal training course and received appropriate accreditation, select the formal training section of the users automated training record and locate the course title in the master task list, then enter the completion date. If the course is not listed, contact the UETM to have it loaded from the master catalog. If it is not listed in the master catalog, contact the FDM at AFCEC to have it loaded in the master catalog.

Section B – COURSE OJECTIVE

B1. Measurement. Measurement of each learning objective is indicated as follows:

B1.1. Use of Progress Checks (PCs) & Rubrics. Indicates formal measurement of knowledge (K) and/or performance (P) elements.

B2. Standard. Standards for measurement are indicated in the course objectives and delineated on the individual progress checklist and rubrics. The minimum standard is 70% on knowledge progress checks. Trainer assistance is used as the standard for performance progress checks and is provided, as warranted during the progress check. Trainee may be required to repeat all or parts of the learning outcome until satisfactory performance is attained.

B3. **Proficiency Level.** Student must demonstrate mastery on each learning outcome/objective before progressing to the next learning requirement.

B4. **Course Objective List.** These objectives are listed in the sequence taught by Blocks of Instruction. Per AETCI 36 - 2651, *Basic Military and Technical Training*, a detailed listing of the initial skills course learning objectives in the Basic Course are listed in the 303X1 AFSC STS.

Section C – SUPPORT MATERIAL

C1. Air Force Qualification Training Packages

C1.1. The AFQTPs for each task group are identified on the AFQTP Documentation Record located in Attachment 3.

C1.2.1. For a complete list of up-to-date AFQTPs applicable to the 3E0X1 AFSC, go to myLearning.

C1.2.2. In addition to the AFQTPs there are web-based courses or assessments developed for certain tasks that are available on myLearning under AFCEC in the specialty topic area.

C2. Career Development Course (CDC) Assessment for Civil Engineer CDC/DL course

C2.1. FDMs have developed CDC assessments for each Air Force CE career field, and they are located on the myLearning under AFCEC in the topic header Civil Engineer Career Development Courses (CDCs) Assessments.

C2.2. CDC assessments are for the sole purpose of providing the trainer and the supervisor a predictive indicator of whether the trainee has a solid grasp on the knowledge portions of the STS.

Section D – EDUCATION AND TRAINING COURSE INDEX

D1. Purpose. This section of the CFETP identifies training courses available for the Electrical specialty. Refer to Education and Training Course Announcements (ETCA) web site for information on the Air Force in-residence courses.

D2. Air Force In-Residence Courses/Mobile Training Team (MTT) Courses.

Course Number	Title	Developer
J8AQR3E031 01AB	Electrical Systems Apprentice ITRO Qual 1	366 TRS
J3ABR3E031 01AC	Electrical Systems Apprentice AF Unique	366 TRS
J3AZR3E051 04AC	CE Advanced Electrical Troubleshooting	366 TRS
J3AZR3E051 05AC	Electrical Systems Craftsman	366 TRS
J3AZR3E051 07AD	Electrical Distribution System Maintenance	366 TRS
J5AZB3E051 00AA	Lightning Protection for AF Facilities	366 TRS

D3. Air Force Career Development Academy (AFCDA).

Course Number	Title	Edit Code
CDC 3E051	Electrical Systems Journeyman	M-01

D4. Exportable/Web-based Courses/Information.

Course Number	Title	Developer
Web based	Arc Flash Safety Awareness QTP	AFCEC/COF
Web based	BEAR Electrical Distribution System QTP	AFCEC/COF
Web based	Civil Engineer 5-Level Core Concepts Course	AFCEC/COF
Web based	Civil Engineer 7-Level Core Concepts Course	AFCEC/COF
Web based	Confined Space Course	AFCEC/COF
Web based	Electrical Safety Standards QTP	AFCEC/COF
Web based	Electrical/Electronic Fundamentals QTP	AFCEC/COF
Web based	Electrical Test Equipment QTP	AFCEC/COF
Web based	Electrical Safety Standards QTP	AFCEC/COF
Web based	Electrical Test Equipment Troubleshooting QTP	AFCEC/COF
Web based	Emergency Airfield Lighting System- v2.0 QTP	AFCEC/COF
Web based	Fall Protection Awareness	AFCEC/COF
Web based	Grounding Fundamental QTP	AFCEC/COF
Web based	Healthcare Provider – CPR Course	AFCEC/COF
Web based	Locating and Testing Underground Circuits	AFCEC/COF
Web based	Remote Area Lighting System Course	AFCEC/COF
Web based	Transformers, Switches, Reclosers and Terminations	AFCEC/COF
Web based	Troubleshooting and Splicing Underground Cable	AFCEC/COF

Web based	Underground Cable, Ducts, Manholes and Handholes	AFCEC/COF
WENG 170	Cybersecurity for Control Systems	AFIT
WENG 270	Advanced Control Systems Cybersecurity	AFIT
WENG 370	Control Systems Cybersecurity for CE Leaders	AFIT

D5. Leadership Training and Academic Fellowships through the Eaker Center

Title
Squadron Officers School (SOS)
Developing Supervisor Course
Defense Emerging Leader Program
Civilian Associate's Degree Program
Civilian Bachelor's Degree Program
Civilian Master's Degree Program
Located at: https://myfss.us.af.mil/USAFCommunity/s/knowledge-detail?xid=13085

OFFICIAL

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3 Attachments
1. Qualitative Training Requirements (Proficiency Code Key)
2. 3E0X1WG Specialty Training Standards (STS)
3. AFQTP Tracker

3E0X1WG Specialty Training Standard (STS)

A1. Qualitative Training Requirements

This Block is for Identification Purposes Only.		
Name Of Trainee		
Printed Name (*Last, First, Middle Initial*)	**Initials (Written*)***	**SSAN (Last four)**
Printed Name of Trainer, Certifying Official and Written Initials		
N/I	*N/I*	

Behavioral Statement GSTS Coding System	
Code	Definition
K	Subject Knowledge Training - The verb selection identifies the individual's ability to identify facts, state principles, analyze, or evaluate the subject.
P	Performance Training - Identifies that the individual has performed the task to the satisfaction of the trainer/certifier; however, the individual may not be capable of meeting the field requirements for speed and accuracy.
PK	Performance Knowledge Training - The verb selection identifies the individual's ability to relate advanced facts, procedures, operating principles, and operational theory for the task.
X	Formal Course
*	Core Task. These are mandatory tasks identified by the Career Field Manager

A2. Specialty Training Standard.

A2.1. Identification. In the training record User Profile section, the UTM will assign individuals to the correct work center, upon in-processing into the unit.

A2.2. Electrical Specialty Tasks. The following are tasks the work center supervisor will use to track each duty position created for their work center.

Attachment 2
Wage Grade Series Training Standard

1. Tasks, Knowledge And Technical References	2. Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided via ICW and/or course			
			A	B	C	D	E	A	B	C	D
	Core/Cert ^	Deployment * / SEI +	Tng Start	Tng Complete	Trainee Initials	Trainer Initials	Certifier Initials	A/H	J	C/WL	S
1.0. CIVIL ENGINEER (CE) CORE CONCEPTS COURSES											
1.1. Complete CE 5-level Core Concepts Course								K	K	K	K
1.2. Complete CE 7-level Core Concepts Course									K	K	K
1.3. Complete WENG 170 Cybersecurity for Control Systems	*							K	K	K	K
1.4. Complete WENG 270 Advanced Control Systems Course									pk	pk	pk
1.5. Complete WENG 370 Control Systems Cybersecurity for CE Leaders	*									K	K
1.6. CE Core Concepts Overview								K	K	K	K
2.0. Sustainment Management Systems (SMS)											
2.1. SMS Principles									K	K	K
2.2. NexGen										pk	pk
2.3. Document inspections into									pk	pk	pk
3.0. AFS - SPECIFIC SAFETY STANDARD											
3.1. Safe clearance operations								K	K	K	K
3.1.1. Electrical facilities safe clearance forms											
3.1.1.1. Complete AF Form 979								pk	pk	pk	pk
3.1.1.2. Complete AF Form 980								pk	pk	pk	pk
3.1.1.3. Complete AF Form 983								pk	pk	pk	pk
3.1.1.4. Complete AF Form 1213								pk	pk	pk	pk
3.1.1.5. Utilize AF Form 269											
3.1.1.5.1. When switching									pk	pk	pk
3.1.1.5.2. When blocking and tagging									pk	pk	pk
3.2. Safe Clearance Fundamentals								K	pk	pk	pk
3.3. Plan safe clearance								K	pk	pk	pk
3.4. Conduct safety meeting/tailgate briefing									pk	pk	pk
3.5. Select Arc Flash PPE								K	pk	pk	pk
3.6. Management of 269 Program									pk	pk	pk
3.7. Management of Equipment									pk	pk	pk
3.8. Confined space											
3.8.1. Fundamentals								K	pk	pk	pk
3.8.2. Safe entry procedures								K	pk	pk	pk
3.8.2.1. Test								K	pk	pk	pk
3.8.2.2. Ventilate								K	pk	pk	pk
3.8.3. Complete Confined Space WBT								K	pk	pk	pk
3.9. Rescue											
3.9.1. Fundamentals								K	pk	pk	pk
3.9.2. Perform pole top rescue								K	pk	pk	pk
3.9.3. Perform manhole rescue								K	pk	pk	pk
3.9.4. Perform aerial lift rescue								K	pk	pk	pk
3.9.5. Treat electric shock								K	pk	pk	pk
3.10. Management of Rescue Programs								K	pk	pk	pk
3.11. Conducting supervisory maintenance safety assessment of distribution system											
3.11.1. De-energized Distribution Systems								K	P	pk	pk
3.11.1.1. Fundamentals								K	P	pk	pk
3.11.1.2. Over 600 volts									P	pk	pk
3.11.1.3. Under 600 volts									P	pk	pk
3.11.2. Energized distruibution systems											
3.11.2.1. Fundamentals								K			
3.11.2.2. Over 600 volts								K			
3.11.2.3. Under 600 volts								K			
3.12. Conducting safety inspections and maintainence of:											
3.12.1. Live line equipment requirements								K	pk	pk	pk
3.12.2. Test hot line tools								K	pk	pk	pk
3.12.3. Test rubber personal protective equipment								K	pk	pk	pk
3.12.4. Test protective rubber equipment equipment								K	pk	pk	pk
3.12.5. Test polyethylene								K	pk	pk	pk
3.13. Management of Records Program for Hotline Tools and Equipment									K	pk	pk
3.14. Perform cardiopulmonary resuscitation (CPR)								pk	pk	pk	pk
3.15. Complete Fear of Heights assessment								pk	pk	pk	pk

4. AFS PUBLICATIONS: TR: T.O. 00-5-1; AFM 32-1065; AFI 32-1062; NFPA 70, NFPA 70E and 72; UFC 3-560-01											
4.1. AFS Specific Publications								K	K	K	K
4.2. Locate desired information in manuals, instructions, technical orders and forms											
4.2.1. Military publications								K	K	K	K
4.2.2. Technical orders								K	K	K	K
4.2.3. National Electrical Code (NFPA 70)								K	K	K	K
4.2.4. National Electrical Safety Code (NFPA 70E)								K	K	K	K
4.2.5. National Fire Alarm and Signaling Code (NFPA 72)								K	K	K	K
4.2.6. Interior Electrical Systems (3-520-01)								K	K	K	K
4.2.7. Electrical Safety, O&M (3-560-01)								K	K	K	K
4.2.8. Commercial publications								K	K	K	K
5.0. PROJECT PLANNING and WORK SCHEDULING TR: AFI 32-1001, AFI 32-1032; Lineman's and Cableman's Handbook; NFPA 70 and 70E											
5.1. Planning functions								K	pk	pk	pk
5.2. Attend AFIT WENG 200 Scoping and Estimating Course									pk	pk	pk
5.3. Attend AFIT WMGT 301 Intro to Asset Management									pk	pk	pk
5.4. Attend WMGT 437 Troop Construction Project Management Course									pk	pk	pk
5.5. Attend AFIT WMGT 322 Intro to Project Management Course									pk	pk	pk
5.6. Attend AFIT WMGT 422 Project Management Course									pk	pk	pk
5.7. Analyze electrical documents (wiring diagrams, schematics, specification sheets, drawings, staking sheets, and one line diagrams)									P	pk	pk
5.8. Work scheduling requirements											
5.8.1. Schedule job under 600 volts in NexGen									pk	pk	pk
5.8.2. Schedule job over 600 volts in NexGen									pk	pk	pk
5.9. Circuit Protection Fundamentals								K	pk	pk	pk
5.10. Determine proper protective devices											
5.10.1. Under 600 volts								pk	pk	pk	pk
5.10.2. Over 600 volts								pk	pk	pk	pk
6.0. ELECTRICAL FUNDAMENTALS: TR: T.O. 31-1-141 Series; NFPA 70											
6.1. Terms and symbols								K	K	K	K
6.2. DC circuits								K	K	K	K
6.3. AC circuits								K	K	K	K
6.4. Electrical Circuit Applications								K	K	K	K
6.5. Construct basic electric circuits								K	pk	pk	pk
6.6. Calculate electrical values								K	pk	pk	pk
6.7. Measure electrical properties in circuits and components								K	pk	pk	pk
6.8. Transformer theory								K	K	K	K
6.9. Load balancing								K	K	K	K
6.10. Primary electrical systems								K	K	K	K
7.0. ELECTRONIC FUNDEMENTALS: TR: 31-1-141 series											
7.1. Circuits								K	K	K	K
7.2. Terms and symbols								K	K	K	K
7.3. Harmonics									K	K	K
8.0. SUBSTATION EQUIPMENT: TR: AFM 32-1062; AFM 32-1065, AFM 91-203; UFC 3-550-01, UFC 3-560-01; Lineman's and Cableman's Handbook; NFPA 70, NFPA 70E											
8.1. Fundamentals								K	K	K	K
8.2. Recloser								K	K	K	K
8.3. Circuit breakers								K	K	K	K
8.4. Potential transformers								K	K	K	K
8.5. Current transformers								K	K	K	K
8.6. Protective relays								K	K	K	K
8.7. Voltage regulator								K	K	K	K
8.8. Insulating medium											
8.8.1. Air								K	K	K	K
8.8.2. Oil								K	K	K	K
8.8.3. Vacuum								K	K	K	K
8.8.4. Gas								K	K	K	K
8.9. Capacitor banks								K	K	K	K
8.10. Battery banks								K	K	K	K
9.0. OVERHEAD DISTRIBUTION SYSTEMS TR: AFM 32-1062; AFM 32-1065, AFM 91-203; UFC 3-550-01, UFC 3-560-01; Lineman's and Cableman's Handbook; NFPA 70, NFPA 70E; NESC											
9.1. Fundamentals								K	pk	pk	pk
9.2. Climb wooden poles using gaffs								K	pk	pk	pk
9.3. Work on pole components off gaffs								K	pk	pk	pk
9.4. Traverse obstacles off gaffs								K	pk	pk	pk
9.5. Handle poles											
9.5.1. Load/Unload								K	pk	pk	pk
9.5.2. Transport								K	pk	pk	pk
9.5.3. Frame								K	pk	pk	pk
9.5.4. Set utility poles								K	pk	pk	pk

9.6. Install											
9.6.1. Guys								K	pk	pk	pk
9.6.2. Overhead line conductors								K	pk	pk	pk
9.6.3. Anchors								K	pk	pk	pk
9.7. Install pole equipment											
9.7.1. Conductor support devices								K	pk	pk	pk
9.7.2. Transformers								K	pk	pk	pk
9.7.3. Protective devices								K	pk	pk	pk
9.7.4. High voltage switches								K	pk	pk	pk
9.7.5. Armor rod								K	pk	pk	pk
9.7.6. Grounding sets								K	pk	pk	pk
9.8. Install Services											
9.8.1. Drop								K	pk	pk	pk
9.8.2. Laterals								K	pk	pk	pk
9.9. Maintenance											
9.9.1. Fundamentals								K	K	K	K
9.9.2. Inspect poles								pk	pk	pk	pk
9.9.3. Maintain overhead distribution equipment								K	pk	pk	pk
9.9.4. Isolate system faults								K	pk	pk	pk
9.9.5. Splice de-energized overhead conductor								K	pk	pk	pk
9.9.6. Replace de-energized conductors support								K	pk	pk	pk
9.9.7. Transfer de-energized conductors to new pole								K	pk	pk	pk
9.9.8. Perform transformer connections								K	pk	pk	pk
9.9.9. Troubleshoot pole mount transformer								K	pk	pk	pk
9.9.10. Perform preventive maintenance on systems over 600 volts								K	pk	pk	pk
10.0. UNDERGROUND DISTRIBUTION SYSTEMS: TR: AFM 91-203; Lineman's and Cableman's Handbook; NFPA 70, NFPA 70E; NESC; UFC 3-560-01											
10.1. Fundamentals								K	K	K	K
10.2. Install											
10.2.1 Direct burial cable								K	pk	pk	pk
10.2.2. Duct systems								K	pk	pk	pk
10.2.3. Cable in duct								K	pk	pk	pk
10.2.4. Pad mount Switches								K	pk	pk	pk
10.2.5. Sectionalizers								K	pk	pk	pk
10.3. Install transformers											
10.3.1. Pad mounted								K	pk	pk	pk
10.3.2. In-vault								K	pk	pk	pk
10.4. Install grounding sets								K	pk	pk	pk
10.5. Splice high voltage underground cable											
10.5.1. Using tape								K	pk	pk	pk
10.5.2. Using pre-form kits								K	pk	pk	pk
10.5.3. Terminate high voltage underground cable								K	pk	pk	pk
10.6. Maintenance											
10.6.1. Inspect termination								K	pk	pk	pk
10.6.2. Inspect underground splices								K	pk	pk	pk
10.6.3. High potential DC tester								K	pk	pk	pk
10.6.4. VLF AC Tester								K	pk	pk	pk
10.6.5. Sectionalizers								K	pk	pk	pk
10.6.6. Pad Mount Switches								K	pk	pk	pk
10.6.7. Perform preventive maintenance on underground Systems over/under 600 volts								K	pk	pk	pk
10.7. Troubleshoot											
10.7.1. Underground cables								K	pk	pk	pk
10.7.2. Pad mount transformer								K	pk	pk	pk
10.8. Isolate system faults								K	pk	pk	pk
10.9. Fabricate 200 Amp load break elbow								K	pk	pk	pk
10.10. Fabricate 600 Amp Dead Break								K	pk	pk	pk
10.11. Install 600 Amp Dead Break								K	pk	pk	pk
10.12. Design distribution systems								K	K	pk	pk
11.0. DISTRIBUTION SYSTEMS: 600 VOLTS AND LESS: TR: AFM 32-1062; AFM 32-1065, AFM 91-203; NFPA 70, NFPA 70E; UFC 3-520-01, UFC 3-530-01, UFC 3- 570-06											
11.1. Fundamentals								K	K	K	K

11.2. Install											
11.2.1. Service entrance								K	pk	pk	pk
11.2.2. Meter base								K	pk	pk	pk
11.2.3. Disconnect								K	pk	pk	pk
11.2.4. Feeders								K	pk	pk	pk
11.2.5. Distribution panels								K	pk	pk	pk
11.2.6. Branch circuits								K	pk	pk	pk
11.2.7. Lighting controls								K	pk	pk	pk
11.2.8. Receptacles								K	pk	pk	pk
11.3. Install fault protection											
11.3.1. Receptacle (GFCI)								K	pk	pk	pk
11.3.2. Breaker (GFCI)								K	pk	pk	pk
11.3.3. Arc fault circuit interrupter (AFCI)								K	pk	pk	pk
11.3.4. Overcurrent protection devices								K	pk	pk	pk
11.4. Grounding											
11.4.1. Perform system connections								K	pk	pk	pk
11.4.2. Perform equipment connections								K	pk	pk	pk
11.4.3. Perform bonding connections								K	pk	pk	pk
11.5. Wire using											
11.5.1. Nonmetallic sheathed cable								K	pk	pk	pk
11.5.2. Surface raceway								K	pk	pk	pk
11.6. Install conduit											
11.6.1. Rigid metal								K	pk	pk	pk
11.6.2. Electrical metallic tubing								K	pk	pk	pk
11.6.3. Flexible metal								K	pk	pk	pk
11.6.4. In hazardous locations								K	pk	pk	pk
11.7. Install dry-type transformers								K	pk	pk	pk
11.8. Luminaires											
11.8.1. Install								K	pk	pk	pk
11.8.2. Maintain								K	pk	pk	pk
11.8.3. Troubleshoot								K	pk	pk	pk
11.9. Read service meters								K	pk	pk	pk
11.10. Maintain transformers								K	pk	pk	pk
11.11. Perform preventive maintenance								K	pk	pk	pk
11.12. Hazardous locations											
11.12.1. Maintain electrical system								K	pk	pk	pk
11.12.2. Troubleshoot electrical system								K	pk	pk	pk
11.13. Appliances											
11.13.1. Fundamentals								K	K	K	K
11.13.2. Install								K	pk	pk	pk
11.13.3. Maintain								K	pk	pk	pk
11.13.4. Troubleshoot								K	pk	pk	pk
11.14. Principles of power conditioners								K	K	K	K
11.15. Cathodic Protection											
11.15.1. Fundamentals								K	K	K	K
11.15.2. Maintain								K	pk	pk	pk
11.15.3. Troubleshoot								K	pk	pk	pk
12.0. AIRFIELD LIGHTING SYSTEMS: TR: AFM 32-1040; UFC 3-535-01; TO 35F5-3-12-1, TO 35F5-4-2-1											
12.1. Fundamentals								K	K	K	K
12.2. Inspect											
12.2.1. Airfield beacon								K	pk	pk	pk
12.2.2. Obstruction lights								K	pk	pk	pk
12.3. Maintain											
12.3.1. Constant current regulator								K	pk	pk	pk
12.3.2. Control components								K	pk	pk	pk
12.3.3. Counterpoise components								K	pk	pk	pk
12.3.4. Fixtures								K	pk	pk	pk
12.3.5. Airport beacon								K	pk	pk	pk
12.3.6. Obstruction lights								K	pk	pk	pk
12.3.7. Condenser discharge light unit								K	pk	pk	pk
12.3.8. Condenser discharge lighting systems								K	pk	pk	pk
12.3.9. Approach path indicators								K	pk	pk	pk
12.3.10. Windsock								K	pk	pk	pk
12.3.11. Hold Line lighting (Wig Wag)								K	pk	pk	pk
12.4. Replace											
12.4.1. Control components								K	pk	pk	pk
12.4.2. Condenser discharge components								K	pk	pk	pk
12.4.3. Rotating beacon components								K	pk	pk	pk
12.4.4. Airfield fixture and lamps								K	pk	pk	pk
12.4.5. Isolating (IL) transformers								K	pk	pk	pk

12.5. Troubleshoot											
12.5.1. Lighting circuits								K	pk	pk	pk
12.5.2. Control circuits								K	pk	pk	pk
12.5.3. Condenser discharge lighting system								K	pk	pk	pk
12.6. Isolate circuits and equipment								K	pk	pk	pk
12.7. Test lighting cable								K	pk	pk	pk
12.8. Repair											
12.8.1. Lighting cable (connector splice kit)								K	pk	pk	pk
12.8.2. Lighting cable (resin splice kit)								K	pk	pk	pk
12.9. Connect constant current regulator for emergency operation								K	pk	pk	pk
13.0. LIGHTING SYSTEMS (STREET, TRAFFIC, FACILITY, SECURITY, RECREATIONAL): TR: Lineman's and Cableman's Handbook; NFPA 70											
13.1. Fundamentals								K	K	K	K
13.2. Install											
13.2.1. High intensity discharge (HID) light fixtures								K	pk	pk	pk
13.2.2. LED fixtures								K	pk	pk	pk
13.2.3. Lighting control components								K	pk	pk	pk
13.3. Adjust											
13.3.1. Controls								K	pk	pk	pk
13.3.2. Fixtures								K	pk	pk	pk
13.3.3. Relamp lighting systems								K	pk	pk	pk
13.3.4. Troubleshoot lighting systems								K	pk	pk	pk
14.0. MOTORS AND MOTOR CONTROL CIRCUITS: TR: AFM 32-1065; NFPA 70											
14.1. Fundamentals								K	K	K	K
14.2. Install											
14.2.1. Motors								K	pk	pk	pk
14.2.2. Motor controls								K	pk	pk	pk
14.3. Maintain											
14.3.1. Motors								K	pk	pk	pk
14.3.2. Motor controls								K	pk	pk	pk
14.4. Troubleshoot											
14.4.1. Motors								K	pk	pk	pk
14.5. Troubleshoot motor controls											
14.5.1. Across-the-line starters								K	pk	pk	pk
14.5.2. Solid state								K	pk	pk	pk
14.5.3. Reversing starters								K	pk	pk	pk
14.5.4. Frequency drive								K	pk	pk	pk
14.5.5. Capacitor starter								K	pk	pk	pk
14.6. Reduced voltage starters											
14.6.1. STAR DELTA								K	K	K	K
14.6.2. Auto transformer								K	K	K	K
14.6.3. Resistor								K	K	K	K
15.0. ELECTRICAL GROUND SYSTEMS: TR: AFM 32-1065; NFPA 70, NFPA 77 NFPA 780; UFC 3-520-01, UFC 3-560-01, UFC 3-575-01, UFC 3-580-1; IEEE Standard 142 - Recommend Practice for Grounding of Industrial and Commercial Power Systems.											
15.1. Fundamentals								K	K	K	K
15.2. Primary distribution system								K	pk	pk	pk
15.3. Facility subsystem								K	pk	pk	pk
15.4. Lightning protection systems								K	pk	pk	pk
15.5. Static								K	pk	pk	pk
15.6. Isolated Grounds								K	pk	pk	pk
15.7. Bonding								K	pk	pk	pk
15.8. Fuels facilities								K	pk	pk	pk
15.9. Weapons Storage Area								K	pk	pk	pk
15.10. Communications facilities								K	pk	pk	pk
15.11. Install											
15.11.1. Primary distribution system								K	pk	pk	pk
15.11.2. Facility subsystem								K	pk	pk	pk
15.11.3. Lightning protection system								K	pk	pk	pk
15.11.4. Isolated Grounds								K	pk	pk	pk
15.11.5. Bonding								K	pk	pk	pk
15.11.6. Static								K	pk	pk	pk
15.12. Maintain											
15.12.1. Lightning protection system								K	pk	pk	pk
15.12.2. Primary distribution system								K	pk	pk	pk
15.12.3. Facility subsystem								K	pk	pk	pk

15.13. Test											
15.13.1. Lightning protection systems								K	pk	pk	pk
15.13.2. Primary distribution system								K	pk	pk	pk
15.13.3. Facility subsystem								K	pk	pk	pk
15.13.4. Isolated Grounds								K	pk	pk	pk
15.13.5. Static								K	pk	pk	pk
15.13.6. Fuels facilities								K	pk	pk	pk
15.13.7. Weapons Storage Area								K	pk	pk	pk
15.13.8. Communications facilities								K	pk	pk	pk
15.14. Troubleshoot											
15.14.1. Primary distribution system								K	pk	pk	pk
15.14.2. Facility subsystem								K	pk	pk	pk
15.14.3. Isolated Grounds								K	pk	pk	pk
15.14.4. Lightning protection system								K	pk	pk	pk
15.15. Corrective actions								K	pk	pk	pk
15.16. Management of Grounding Program								K	pk	pk	pk
16.0. SIGNALING SYSTEMS: TR: NFPA 70, NFPA 72, NFPA 101; AFI 32-2001, AFM 91-203; UFC 3-600-1, UFC											
16.1. Fundamentals								K	K	K	K
16.2. Fire Alarm Systems											
16.2.1. Code central receiving operations								K	K	K	K
16.2.2. Maintain											
16.2.2.1. Fire Alarm Panel								K	pk	pk	pk
16.2.2.2. Addressable Panel								K	pk	pk	pk
16.2.2.3. Mass Notification System (MNS)								K	pk	pk	pk
16.2.2.4. Annunciators								K	pk	pk	pk
16.2.2.5. Transceiver/Repeaters								K	pk	pk	pk
16.2.2.6. Initiating Devices								K	pk	pk	pk
16.2.2.7. Shielded Plenum Cable								K	pk	pk	pk
16.2.2.8. Notification Appliance Circuits (NAC)								K	pk	pk	pk
16.2.2.9. Booster Power Supply (BPS)								K	pk	pk	pk
16.2.2.10. Antennas								K	pk	pk	pk
16.2.2.11. Narrowband Frequency								K	pk	pk	pk
16.2.3. Repair											
16.2.3.1. Fire Alarm Panel								K	pk	pk	pk
16.2.3.2. Addressable Panel								K	pk	pk	pk
16.2.3.3. Mass Notification System (MNS)								K	pk	pk	pk
16.2.3.4. Annunciators								K	pk	pk	pk
16.2.3.5. Transceiver/Repeaters								K	pk	pk	pk
16.2.3.6. Initiating Devices								K	pk	pk	pk
16.2.3.7. Shielded Plenum Cable								K	pk	pk	pk
16.2.3.8. Notification Appliance Circuits (NAC)								K	pk	pk	pk
16.2.3.9. Booster Power Supply (BPS)								K	pk	pk	pk
16.2.3.10. Antennas								K	pk	pk	pk
16.2.3.11. Narrowband Frequency								K	pk	pk	pk
16.2.4. Test											
16.2.4.1. Fire Alarm Panel								K	pk	pk	pk
16.2.4.2. Addressable Panel								K	pk	pk	pk
16.2.4.3. Mass Notification System (MNS)								K	pk	pk	pk
16.2.4.4. Annunciators								K	pk	pk	pk
16.2.4.5. Transceiver/Repeaters								K	pk	pk	pk
16.2.4.6. Initiating Devices								K	pk	pk	pk
16.2.4.7. Shielded Plenum Cable								K	pk	pk	pk
16.2.4.8. Notification Appliance								K	pk	pk	pk
Circuits (NAC)								K	pk	pk	pk
16.2.4.9. Booster Power Supply								K	pk	pk	pk
16.2.4.10. Antennas								K	pk	pk	pk
16.2.4.11. Narrowband Frequency								K	pk	pk	pk
16.3. Cyber Security											
16.3.1. Fundamentals								K	K	K	K
16.3.2. Policy								K	K	K	K
16.3.3. Control Systems								K	pk	pk	pk
16.3.4. Design & Acquisition								K	K	pk	pk
16.3.5. System Access								K	K	pk	pk
16.3.6. Security Management								K	pk	pk	pk

16.4. Emergency Lighting Systems											
16.4.1. Fundamentals								K	K	K	K
16.4.2. Install								K	pk	pk	pk
16.4.3. Maintain								K	pk	pk	pk
16.4.4. Troubleshoot								K	pk	pk	pk
16.5. Traffic control systems											
16.5.1. Fundamentals								K	K	K	K
16.5.2 Maintain								K	pk	pk	pk
16.5.3. Troubleshoot								K	pk	pk	pk
17. TOOLS AND EQUIPMENT: TR: AFI 24-301; AFM 32-1065; NFPA 70E; TOs 32-1-2											
17.1. Fundamentals								K	K	K	K
17.2. Maintain											
17.2.1. Pole trailer								K	pk	pk	pk
17.2.2. Reel jacks								K	pk	pk	pk
17.2.3. Cable pulling guide								K	pk	pk	pk
17.2.4. Handline								K	pk	pk	pk
17.2.5. Block and tackle								K	pk	pk	pk
17.2.6. Chain hoist								K	pk	pk	pk
17.2.7. Climbing equipment								K	pk	pk	pk
17.3. Use electricians' hand tools								pk	pk	pk	pk
17.4. Use portable power tools								pk	pk	pk	pk
17.5. Test equipment											
17.5.1. Fundamentals								K	K	K	K
17.6. Use Multimeter								pk	pk	pk	pk
17.7. Use Clamp-on ammeter								pk	pk	pk	pk
17.8. Use Phase rotation meter								K	pk	pk	pk
17.9. Use Megohmmeter								pk	pk	pk	pk
17.10. Use Circuit breaker tester								pk	pk	pk	pk
17.11. Use Tachometer								pk	pk	pk	pk
17.12. Use Frequency meter								K	pk	pk	pk
17.13. Use Cathodic protection set								K	pk	pk	pk
17.14. Use Recording meter								K	pk	pk	pk
17.15. Use Circuit tracer								pk	pk	pk	pk
17.16. Use Infrared scanner								K	pk	pk	pk
17.17. Use Gas detector								K	pk	pk	pk
17.18. Use Hot stick tester								K	pk	pk	pk
17.19. Use High voltage phase tester								K	pk	pk	pk
17.20. Use Relay tester								K	pk	pk	pk
17.21. Use Earth resistance tester								K	pk	pk	pk
17.22. Use Cable fault locator, low voltage								K	pk	pk	pk
17.23. Use Cable locator								K	pk	pk	pk
17.24. Use High potential DC tester								K	pk	pk	pk
17.25. Use High voltage audible indicator								K	pk	pk	pk
17.26. Use Wattmeter								K	pk	pk	pk
17.27. Use VLF Hypot Tester								K	pk	pk	pk
17.28. Utility vehicles											
17.28.1. Fundamentals								K	K	K	K
17.29 Maintain											
17.29.1. Aerial lift truck with insulated bucket								K	pk	pk	pk
17.29.2. Line maintenance truck								K	pk	pk	pk
17.30. Operate											
17.30.1. Aerial lift truck controls								pk	pk	pk	pk
17.30.2. Line maintenance truck controls								pk	pk	pk	pk
17.30.3. Aerial lift equipment								pk	pk	pk	pk
17.30.4. Use hand signals to direct line maintenance truck operator								pk	pk	pk	pk
17.31. Dielectrically Test											
17.31.1. Aerial lift truck								K	pk	pk	pk
17.31.2. Line maintenance truck								K	pk	pk	pk
17.32. Conduit benders											
17.32.1. Fundamentals								K	K	K	K
17.33. Use manual								pk	pk	pk	pk
17.34. Use hydraulic								pk	pk	pk	pk
17.35. Use electric								pk	pk	pk	pk
17.36. Conduit threaders											
17.36.1. Fundamentals								K	K	K	K
17.37. Use manual								pk	pk	pk	pk
17.38. Use power								pk	pk	pk	pk
17.39. Use soldering equipment								pk	pk	pk	pk
17.40. Knockout											
17.40.1. Fundamentals								K	K	K	K
17.40.2. Use hydraulic								pk	pk	pk	pk

18.0. FOREIGN ELECTRICAL SYSTEMS											
18.1. Fundamentals of foreign voltages											
18.2. Electrical systems terms											
18.3. Electrical distribution systems											
18.3.1. Fundamentals								K	K	K	K
18.4. Voltages								K	K	K	K
18.5. Wiring color code								K	K	K	K
18.6. Wire sizes								K	K	K	K
18.7. Installation								K	K	K	K
18.8. Wire or cable types								K	K	K	K
18.9. Distribution panels								K	K	K	K
18.10. Protective devices								K	K	K	K

Attachment 3
3E0X1 Air Force Qualification Training Package Documentation Record

A3. AFQTP Documentation Record.

A3.1. To ensure each Electrical Technician is trained to the correct standard an AF Qualification Training Package (AFQTP) has been developed for each task group identified in their STS. These AFQTPs are to be used by the trainee, trainer, and certifier in their on-the-job-training program for qualification training and developmental training.

A3.2. These AFQTPs ensure all aspects of the task are covered sufficiently and provide additional task knowledge, in preparation for hands-on training. AFQTPs summarize procedures on a task performance checklist for use by trainers, certifiers, and trainees.

A3.2.1. The UTM or supervisor can download paper based AFQTP's. Paper-based AFQTP's are found on CE DASH under documents in the AFQTP folder.

A3.2.2. In addition to the paper-based AFQTPs there are web-based courses or assessments developed for certain tasks that are available on myLearning under AFCEC in the Home Station topic area.

A3.3. **Documentation.** Before a task can be signed off in the JQS section of the individual automated training record, the task must be signed off in the QTP section first.

A3.4. 3E0X1WG AFQTP Tracker.

Task Number	Tasks, Knowledge and Technical References	Core /Deployment Tasks		Certification of AFQTPs			
		Core	Deployment	Tng Start	Tng Complete	Trainee Initials	Trainer Initials
1.0.	**CIVIL ENGINEER (CE) COMMON CORE CONCEPTS COURSES**						
1.1.	Complete CE 3-Level Core Concepts Course						
1.2.	Complete CE 7-Level Core Concepts Course						
1.4.	Complete WENG 170 Cybersecurity for Control Systems						
1.5.	Complete WENG 370 Control Systems Cybersecurity for CE Leaders						
2.0.	**Sustainment Management Systems (SMS)**						
2.4.	Complete AFIT WMGT 131 SMS Builder Course						
2.5.	Complete AFIT WMGT 436 Requirements and Optimization						
3.0.	**AFS SPECIFIC SAFETY STANDARD**						
3.1.1.	**Electrical facilities safe clearance forms**						
3.1.1.1.	Complete AF Form 979						
3.1.1.2.	Complete AF Form 980						
3.1.1.3.	Complete AF Form 983						
3.1.1.5.	**Utilize AF Form 269:**						
3.1.1.5.1.	When switching						
3.1.1.5.2.	When blocking and tagging						
3.3.	Plan safe clearance						
3.8.	**Confined space**						
3.8.2.	**Safe entry procedures**						
3.8.3.	Complete Confined Space WBT						
3.12.	**Conduct safety inspections and maintain:**						
3.12.2.	Test hot line tools						
3.12.3.	Test rubber personal protective equipment						
5.0.	**PROJECT PLANNING and WORK SCHEDULING**						
5.2.	Attend AFIT WENG 200 Scoping and Estimating Course						
5.3.	Attend AFIT WMGT 301 Intro to Asset Management						
5.5.	Attend AFIT WMGT 322 Intro to Project Management Course						
6.0.	**ELECTRICAL FUNDAMENTALS**						
6.6.	Calculate electrical values						
9.0.	**OVERHEAD DISTRIBUTION SYSTEMS**						
9.6	**Install**						
9.6.2.	Overhead line conductors						
9.7.	**Install pole equipment**						
9.7.1.	Conductor support devices						
9.7.2.	Transformers						
9.7.3.	Protective devices						
9.7.6.	Grounding sets						
9.9.	**Maintenance**						
9.9.2.	Inspect Poles						

Task Number	Tasks, Knowledge and Technical References	Core /Deployment Tasks		Certification of AFQTPs			
		Core	Deployment	Tng Start	Tng Complete	Trainee Initials	Trainer Initials
9.9.8.	Perform transformer connections						
10.0.	**UNDERGROUND DISTRIBUTION SYSTEMS**						
10.3.	**Install Transformers**						
10.3.1.	Pad mounted						
10.4.	Install grounding sets						
10.5.	**Splice high voltage underground cable**						
10.5.3.	Terminate high voltage underground cable						
10.9.	Fabricate 200 Amp load break elbow						
11.0.	**DISTRIBUTION SYSTEMS, 600 VOLTS AND LESS**						
11.2.	**Install**						
11.2.4.	Feeders						
11.2.5.	Distribution panels						
11.2.6.	Branch circuits						
11.3.	**Install fault protection**						
11.3.4.	Overcurrent protection devices						
11.4.	**Grounding**						
11.4.1.	Perform system connections						
11.4.2.	Perform equipment connections						
11.4.3.	Perform bonding connections						
11.8.	**Luminaires**						
11.8.3.	Troubleshoot						
12.0	**AIRFIELD LIGHTING SYSTEMS**						
12.3.	**Maintain**						
12.3.1.	Constant current regulator						
12.3.2.	Control components						
12.3.9.	Approach path indicators						
12.4.	**Replace**						
12.4.5.	Isolating (IL) transformers						
12.5.	**Troubleshoot**						
12.5.1.	Lighting circuits						
12.6.	Isolating (IL) transformers						
12.9.	Connect constant current regulator for emergency operation						
14.0.	**MOTORS AND MOTOR CONTROL CIRCUITS**						
14.2.	**Install**						
14.2.2.	Motor controls						
16.0.	**SIGNALING SYSTEMS**						
16.2.	**Fire Alarm Systems**						
16.2.1.	Code central receiving operations						
16.2.2.	**Maintain**						
16.2.2.1.	Fire Alarm Panel						
16.2.2.2	Addressable Panel						
16.2.2.6.	Initiating Devices						
16.2.2.8.	Notification Appliance Circuits (NAC)						
16.2.2.9.	Booster Power Supply (BPS)						
16.2.3.	**Repair**						
16.2.3.1.	Fire Alarm Panel						
16.2.3.2.	Addressable Panel						

Task Number	Tasks, Knowledge and Technical References	Core /Deployment Tasks		Certification of AFQTPs			
		Core	Deployment	Tng Start	Tng Complete	Trainee Initials	Trainer Initials
16.2.3.6.	Initiating Devices						
16.2.3.8.	Notification Appliance Circuits (NAC)						
16.2.3.9.	Booster Power Supply (BPS)						
17.0.	**TOOLS AND EQUIPMENT**						
17.5.	**Test equipment**						
17.6.	Use Multimeter						
17.7.	Use Clamp-on ammeter						
17.8.	Use Phase rotation meter						
17.8.	Use Megohmmeter						
17.19.	Use High voltage phase tester						
17.28.	**Utility vehicles**						
17.29.	**Maintain**						
17.29.1.	Aerial lift truck with insulated bucket						
17.29.2.	Line maintenance truck						
17.30.	**Operate**						
17.30.1.	Aerial lift truck with insulated bucket						
17.30.2.	Line maintenance truck						
17.30.4.	Use hand signals to direct line maintenance truck operator						