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CFETP 3E0X1
Part I and II
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ELECTRICAL SYSTEMS SPECIALTY

Master

Basic

Senior

CAREER FIELD EDUCATION AND TRAINING PLAN

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CAREER FIELD EDUCATION AND TRAINING PLAN
ELECTRICAL SYSTEMS SPECIALTY (AFSC 3E0X1)

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PREFACE

This Career Field Education and Training Plan (CFETP) is a comprehensive education and training document that identifies life-cycle education and training requirements and training support resources, and minimum core task requirements for the Electrical Systems Specialty. The CFETP will provide our personnel with a clear career path to success and instill rigor in all aspects of our career field training. This CFETP was developed in accordance with the requirements of AFI 36-2670, "*Total Force Development" and* AFI 36-2651, *Air Force Training Program*.
Note: Civilians occupying associated positions use Part II to support duty position qualification training.

The CFETP consists of two parts; supervisors plan, manage, and control training within the specialty using both parts of the plan.

Part I provides information necessary for overall management of the specialty.

- Section A provides general information about how the CFETP will be used.
- Section B identifies career field progression information, duties and responsibilities, training strategies, and the career field path.
- Section C associates each skill-level with specialty qualifications (knowledge, education, and training).
- Section D displays resource constraints.
- Section E identifies transition training guide requirements for SSgt through MSgt.

Part II includes the following:

- Section A identifies the Specialty Training Standards (STS) to include duties, tasks, and technical references to support Air Education and Training Command (AETC) conducted training, wartime course, and correspondence course requirements.
- Section B contains the course objective list and training standards supervisors will use to determine if an Airman has satisfied training requirements.
- Section C identifies available support materials.
- Section D 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.
- Section E identifies MAJCOM-unique training requirements supervisors can use to determine additional training required for the associated qualification needs.
- Section F identifies home station training references and courses material required for this specialty in support of contingency/wartime training.

Note: At unit level, supervisors and trainers must use Part II to identify, plan, and conduct training commensurate with the overall goals of this guide.

Using guidance provided in the CFETP will ensure individuals in this specialty 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.

ABBREVIATIONS/TERMS EXPLAINED

Advanced Training (AT*).* A formal course training toward a technical or supervisor level Air Force Specialty (AFS). Training is for selected career Airmen in the advanced technology level of the AFS. Graduates are not awarded a new AFSC.

Air Force Career Field Manager (AFCFM). An individual on the Air Staff charged with the responsibility for overseeing all training and career field management aspects of an Air Force specialty or group of specialties.

Air Force Enlisted Classification Directory (AFECD). The Official directory for all military enlisted classification descriptions, codes, and identifiers. The specialty descriptions and codes will be used to identify each Air Force job (valid requirements) and describes the minimum mandatory qualifications of personnel to fill these jobs. The updated AFECD is available at AF Personnel Center's web site located at myPers under the military classification menu.

Air Force Civil Engineer Center (AFCEC). Formally, Air Force Civil Engineer Support Agency (AFCESA), the focal point for all Civil Engineer training development. All individual AFSC Force Development Managers (FDMs) are located at AFCEC.

Air Force Credentialing Opportunities On-Line (AF COOL) Program. AF COOL replaced the CCAF Credentialing and Education Research Tool (CERT). The AF COOL Program can be accessed through the AF Virtual Education Center (AFVEC). The site provides a research tool designed to increase an Airman's awareness of national professional credentialing and CCAF education opportunities available for all Air Force occupational specialties.

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 lists can be accessed at the **AFIT Civil Engineer School Course Catalog.**

Air Force Job Qualification Standard/Command Job Qualification Standard (AFJQS/CJQS). A comprehensive task list that describes a particular job type or duty position. Used by supervisors to document task qualifications. The tasks on the AFJQS/CJQS are common to all persons serving in the described duty position.

Air Force Qualification Training Package (AFQTP). A required instructional package designed for use at the unit to qualify, or aid qualification, in a duty position or program, or on a piece of equipment. AFQTPs identify the Air Forces standardized method for performing the task. The AFQTP may be printed (paper-based), computer-based, in other audiovisual media formats, or all three. If determined by the AFCFM, a paper-based AFQTP, along with a computer-based product may be needed to satisfy a particular training requirement.

Career Field Education and Training Plan (CFETP). A comprehensive, multipurpose document encapsulating the entire spectrum of education and training for a career field. It outlines a logical

growth plan that includes training resources. It is designed to make career field training identifiable, to eliminate duplication, and to ensure this training is budget defensible.

Chief, Civil Engineer Force Development (CCEFD). Located at AFCEC, this individual is responsible for force development education and training associated within the 3E0 to 3E6 AFSCs.

Commercial Off The Shelf (COTS). Commercially procured training products.

Core Tasks (5^ or 7^). Mandatory tasks that the AFCFM has identified as a minimum qualification requirement within an Air Force specialty or duty position. These tasks exemplify the essence of the career field.

Critical Tasks. Tasks identified by the workcenter supervisor as having a detrimental effect on mission accomplishment if not performed correctly. Critical tasks may or may not be the same as core tasks but are mandatory if identified as 'critical' to the individuals position by the supervisor or workcenter.

Diamond Tasks (♦). Diamond tasks are extremely important to the career field. Diamond tasks are the same as core tasks with one exception--equipment shortfalls at most locations have created problems with the actual **hands-on** training/certification of these tasks. In instances where required equipment is not available for instruction, completion of the tasks AFQTP is all that is required for upgrade and qualification training. Hands-on certification will be accomplished at the first opportunity when equipment is available.

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, Air Force Institute of Technology, Air University, and Air Education Training Command offer on-line courses.

Duty Position Tasks. The tasks assigned to an individual for the position currently held. These include as a minimum all core tasks, critical tasks and any other tasks assigned by the supervisor.

Enlisted Professional Military Education (EPME). Enlisted Professional Military Education (EPME) introduces Airmen to appropriate institutional competencies at specific milestones throughout their career and includes two phases, Basic and Resident. Basic EPME requirements are completed via distance learning (DL) courses to establish a foundation for continued development. Resident EPME requirements include Airman Leadership School (ALS), NCOA, SNCOA and the Chief Leadership Course (CLC). Resident attendance is not duplicative of the basic EPME requirements, but builds upon the competencies obtained to achieve higher proficiency levels.

Expeditionary Combat Support-Training Certification Center (ECS-TCC). Total Force training center managed by the Air Force Reserve Command.

Force Development Manager (FDM). An individual assigned to the Air Force Civil Engineer Center (AFCEC) charged with the responsibility for overseeing all training and career field

management aspects of a specific Air Force Civil Engineer specialty.

Initial Skills Training. AFS-specific training an individual receives upon entry into the Air Force or upon retraining into this specialty for award of the 3-skill level. Normally, this training is conducted by AETC at one of the technical training wings.

Just-in-Time (JIT) Training. Training required just prior to a selected deployment or tasking that delivers training necessary for mission accomplishment. It is typically predicated on hard-to-obtain contingency skills.

MAJCOM Functional Managers (MFMs). Senior leaders, designated by the appropriate functional authority (FA) who provide day-to-day management and responsibility over specific functional communities at the MAJCOM, FOA, DRU, or ARC level. While they should maintain an institutional focus in regards to resource deployment and distribution, MFMs are responsible for ensuring their specialties are equipped, developed, and sustained to meet future needs of the total Air Force mission.

MyLearning. Anytime, anyplace learning within the Civil Engineer Community consisting of instructional modules and skill-level awarding course material specific to the AFSC.

Occupational Analysis Report (OAR). A detailed report showing the results of an occupational survey of tasks performed within a particular AFS. The information collected from this survey is used to make changes to upgrade training and Weighted Airman Promotion Exams.

On-the-Job Training (OJT). Hands-on, over-the-shoulder training conducted to certify personnel in both upgrade (skill-level award) and 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 required for upgrade.

Qualification Training (QT). Actual hands-on task performance training designed to qualify an individual in a specific duty position. This portion of the dual channel on-the-job training program occurs both during and after the upgrade training process. It is designed to provide the performance skills required to do the job.

Regional Training Site (RTS). Total Force training centers managed by the Air National Guard.

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

Specialty Training Standard (STS). Describes skills and knowledge that airmen in a particular AFS need on the job. It further serves as a contract between AETC and the user to show the overall training requirements for an AFS taught in the resident and nonresident courses.

Specialty Training Requirements Team (STRT). Prior to a Utilization and Training Workshop

(U&TW), the AFCFM along with a team of Subject Matter Experts from each MAJCOM meet to determine education and training requirements (formal and on-the-job training) for an Air Force Specialty. The STRT is used, to create or revise training standards for all the types of training. The team finalizes the CFETP, specialty description and develops a standard for all courses.

Subject Matter Expert (SME). An individual with expertise in a particular subject matter, tasked to represent the subject matter to an individual or group for technical accuracy.

Supplemental Training. A formal course which provides individuals who are qualified in one or more positions of their Air Force Specialty (AFS) with additional skills/knowledge to enhance their expertise in the career field. Training is for selected career airmen at the advanced level of the AFS.

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

Task Qualification Training (TQT). Training conducted after Chemical, Biological, Radiological, and Nuclear defense classroom training in which individuals perform wartime mission essential tasks in a simulated wartime environment while wearing full ground crew individual protective equipment or aircrew individual protective equipment.

Training Planning Team (TPT). Comprised of the same personnel as a U&TW, however TPTs are more involved in training development and the range of issues not found in normal U&TWs.

Upgrade Training (UGT). A mix of formal training and informal training (on-the-job) to qualify and upgrade airmen in the award of a skill level.

Utilization and Training Workshop (U&TW). An executive decision meeting to vote on funding (Course Resource Estimates) for instructor authorizations, equipment and facilities needed to support any new or revised training coming from the STRT. They will also determine which organizations will furnish resources, establish commitment and delivery dates in writing, document equipment availability dates and any problems, and establish training delivery dates.

Vectored Positions. Key SNCO positions in your career field. To learn more about vectored positions go to MyVECTOR.

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

PART 1

SECTION A - GENERAL INFORMATION

A1. Purpose: This CFETP provides the necessary information for AFCFMs, MFMs, commanders, training managers, supervisors, trainers, and certifiers to plan, develop, manage, and conduct an effective career field training program. This plan outlines the training personnel in an AFS require to develop and progress throughout their careers. It identifies initial skills, upgrade, qualification, advanced, and proficiency training.

A1.1. **Initial Skills Training.** The AFS-specific training an individual receives upon entry into the Air Force or upon retraining into these specialties for award of the 3-skill level. For our career fields, this training is provided by AETC at the 366 TRS, Sheppard AFB, TX.

A1.2. **Upgrade Training.** Identifies the mandatory courses, task qualification requirements, and correspondence course completion requirements for award of the 5-, 7-, and 9-skill levels.

A1.3. **Qualification Training.** Hands-on task performance training designed to qualify an Airman in a specific duty position. This training program occurs both during and after the upgrade training process. It is designed to provide the performance skills/knowledge training required to do the job.

A1.4. **Advanced Training.** A formal specialty training course used for selected career Airmen. Graduates are not awarded a new AFSC.

A1.5. **Proficiency Training.** Additional training either, in-residence, exportable advanced training courses, or on-the-job training, provided to people to increase their skills and knowledge beyond the minimum required for upgrade.

A1.6. **CFETP**. The CFETP has several purposes – some are:

A1.6.1. Serves as a management tool to plan, manage, conduct, and evaluate a career field training program. It is used to help supervisors identify training at the appropriate point in an individual's career.

A1.6.2. Identifies task and knowledge training requirements for each skill level in this specialty and recommends education/training throughout each phase of an individual's career.

A1.6.3. Lists training courses available in this specialty and identifies sources of training and the delivery methods.

A1.6.4. Identifies major resource constraints that affect full implementation of the desired career field training process.

A2. Uses. MFMs and supervisors will use the plan at all levels to ensure comprehensive and cohesive training programs are available for each individual in the specialty.

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A2.1. AETC training personnel will develop and 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 AFCFM and AFCEC Force Development Division (AFCEC/COF) to develop acquisition strategies for obtaining resources needed to provide the identified training.

A2.2. MFMs ensure their training programs complement the CFETP mandatory initial, upgrade, qualification, and proficiency. OJT, resident training, contract training, or exportable courses can satisfy identified requirements. MAJCOM - developed training to support this AFS must be identified for inclusion into the plan.

A2.3. Unit Education and Training Managers and supervisors must ensure each individual completes the mandatory upgrade training requirements (including MAJCOM supplemental requirements) specified in this plan.

A2.4. Each individual will complete mandatory 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 AFCFM is the approval authority. In addition, the Air Force Career Field Manager will initiate an annual review of this document to ensure currency and accuracy. Major Command representatives and AETC training personnel will identify and coordinate on the career field training requirements. Using the list of courses in Part II, they will eliminate duplicate training.

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SECTION B - CAREER FIELD PROGRESSION AND INFORMATION

B1. Specialty Descriptions. Electrical Systems Apprentice, Journeyman, Craftsman and Superintendent.

B1.1. 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.

B1.1.1. Duties and Responsibilities for Apprentice (3E031), Journeyman (3E051), and Craftsman (3E071).

B1.1.2. Assist Water and Fuels Systems Maintenance (WFSM) with fire suppression, and backflow prevention systems. Provides power for field portable water treatment equipment. Monitors systems operation to ensure efficiency and compliance with local state, federal and DoD regulations for safety and environmental regulations for hazardous materials.

B1.1.3. Installs, maintains, and repairs energized and de-energized electrical distribution systems and components. Installs, maintains, and repairs interior, exterior, overhead, underground electrical power distribution systems and components such as capacitor banks, vacuum and air break switches, breakers, transformers, fuses, lighting fixtures, receptacles, and motors. Climbs utility poles when required and operates special purpose vehicles and equipment, including line maintenance and high reach trucks to inspect, maintain, and repair overhead distribution systems. Inspects power line poles for pest damage, deterioration, and loose hardware. Inspects, tests, and services overhead line conductors and direct buried cables, and those in underground ducts and conduits. Troubleshoots malfunctions using technical orders, manufacturers' handbooks, local procedures, codes, and directives. Tests air samples in manholes for dangerous concentrations of combustible or toxic gases and oxygen deficiency.

B1.1.4. Maintains, inspects, and repairs special purpose electrical systems. Inspects, maintains, and repairs fixed and portable airfield lighting systems including runway, threshold, approach, taxiway, visual glide slope, obstruction, and distance marker lights. Installs, maintains, and repairs cathodic protection and grounding systems, and voltage and current regulators. Installs, maintains, and repairs fire alarms and traffic system controls. Installs, maintains, and repairs electrical appliances. Maintains proficiency in cardiopulmonary resuscitation, first aid, pole top, aerial lift, and manhole rescue. Complies with safety and environmental regulations and practices.

B1.1.5. Advises on problems installing and repairing electrical power distribution and special purpose electrical systems. Solves maintenance problems by studying layout drawings, wiring and schematic diagrams, and analyzing construction and operating characteristics. Uses meters, testing devices, indicators, and recorders to locate equipment, distribution, and motor controller malfunctions and faults. Diagnoses malfunctions, and recommends repair procedures necessary to correct defective equipment. Develops and establishes maintenance and operating procedures to ensure maximum efficiency.

B1.1.6**.** Performs planning activities. Performs facility surveys. Surveys proposed work to determine resource requirements. Prepares cost estimates for in-service work. Applies engineered performance standards to plan and estimate jobs. Coordinates plans and other activities.

B1.2. Duties and Responsibilities for Superintendents (3E090).

B1.2.1. Manages resources and directs activities devoted to installation removal, operation, maintenance and repair of all electrical power distribution systems, electrical power generating and control systems, fire alarms, lightning protection, cathodic protection systems, airfield lighting systems, and aircraft arresting systems. Related DoD Occupational Subgroup: 172100.

B1.2.2. Plans and organizes installation, maintenance, and repair for all electrical activities. Programs and coordinates electrical power outages, maintenance, and repair requirements with users. Investigates proposed work sites to determine resource requirements. Prepares cost estimates for in-service work requirements. Applies engineered performance standards in planning and estimating jobs. Coordinates measured and direct schedule work order requirements during approval, processing, and completion stages. Recommends method of accomplishment based on existing capabilities. Develops, monitors, and maintains work order priority program. Monitors work costs to ensure compliance with legal limits or support agreements and recapitalization process. Coordinates Work Order Review Board processes and provides agenda as required.

B1.2.3. Manages functions in electrical systems and power production activities. Directs installation and removal, operation, maintenance, and repair of electrical power distribution systems and electrical power generating and control systems activities, including overhead and underground distribution systems, power plant operations, fire alarms, lightning protection, cathodic protection systems, airfield lighting systems, and aircraft arresting systems. Identifies and controls requisitions. Ensures productivity and work compliance. Interprets electrical generating unit records and analyzes for organizational, intermediate, or depot level maintenance and preparation of maintenance forms, reports, and records. Issues and logs safe clearance procedures for all crafts engaged in maintenance of electrical systems and power production equipment. Ensures compliance with environmental and safety regulation and practices to include confined space programs.

B1.2.4. Performs planning activities and conducts facility surveys. Surveys proposed work to determine resource requirements. Obtains certifications, special tools, and equipment for assigned personnel. Ensures compliance with all safety and environmental regulations.

B1.2.5. Coordinates, monitors, and executes contingency and Prime BEEF training requirements and associated deployment preparation programs and duties. Ensures personnel are in a constant ready state to meet deployment commitments.

B1.2.6. Coordinates, monitors, and executes contract quality assurance functions, as required.

B2. Skill and Career Progression. Adequate training and timely progression from the apprentice to the superintendent level play an important role in the Air Force's ability to

accomplish its mission. It is essential that everyone involved in training must do his or her part to plan, manage, and conduct an effective training program. The guidance provided in this part of the CFETP will ensure each individual receives viable training at appropriate points in their career.

B2.1. **Apprentice (AFSC 3E031 – AB, AMN, A1C).**

B2.1.1. Upon completion of initial skills training, a trainee will work with a trainer to enhance their knowledge and skills to progress to the 5-level.

B2.1.2. Utilize the CDC, Air Force Qualification Training Packages (AFQTP) and web-based courses for subject and task fundamentals in the career field.

B2.1.3. Once trained and task certified a trainee may perform the task unsupervised.

B2.1.4. After all upgrade training requirements are completed, supervisors and Unit Training Managers (UTMs) coordinate upgrade procedures.

B2.2. **Journeyman (AFSC 3E051 – SrA, SSgt).**

B2.2.1. A journeyman may be assigned job positions such as team leader, shift supervisor, and task trainer.

B2.2.2. Complete mandatory Civil Engineer (CE) 5-Level Core Concepts Course Distance Learning (DL) product located on the myLearning prior to beginning CDC/DL course.

B2.2.3 Completion of 5-level CDCs, 100% 5-level core and diamond tasks are basic prerequisites for five skill level award.

B2.2.4. Must complete, as a **minimum**, twelve months OJT before award of the 5-level (nine months for re-trainees that were awarded a five level in a previous AFSC).

B2.2.5. Must complete the appropriate Basic Enlisted Professional Military Education (EPME) and Resident EPME as outlined in Air Force Instruction 36-2670 *Total Force Development*

B2.2.6. Enter into continuation training to broaden technical experience base.

B2.2.7. Use CDCs and other reference material to prepare for Weighted Airman Promotion System (WAPS) testing.

B2.2.8. Pursue a Community College of the Air Force (CCAF) degree.

B2.2.9. Completion AFIT WMGT 301 Intro to Asset Management, AFIT WMGT 131 SMS Builder AFIT and AFIT WENG 170 Cyber Security for Control Systems courses are mandatory.

B2.2.10. After all upgrade training requirements are completed, supervisors and UTMs coordinate upgrade procedures.

B2.3. **Craftsman (AFSC 3E071 – SSgt, TSgt, and MSgt).**

B2.3.1. A craftsman can expect to fill various supervisory and management positions such as shift leader, team chief, supervisor, or task certifier.

B2.3.2. Completion of CE 7-Level Core Concepts Course located on myLearning and 100% of core and diamond tasks are basic prerequisites for seven skill level award.

B2.3.3. Must complete, as a **minimum**, twelve months OJT before award of the 7-level (six months for re-trainees that were awarded a seven level in a previous AFSC).

B2.3.4. Must complete the appropriate Resident EPME as outlined in Air Force Instruction, 36-2670 *Total Force Development*.

B2.3.5. Should take continuation training courses to broaden technical knowledge or management of resources and personnel.

B2.3.6. Use CDCs and other reference material to prepare for Weighted Airman Promotion System (WAPS) testing. Airmen testing for the rank of E-7 through E-9 are not required to WAPS test.

B2.3.7. Continue academic education through CCAF and higher degree programs is encouraged.

B2.3.8. Completion of AFIT WENG 200 Scoping and Estimating, AFIT WMGT 322 Intro to Project Management, AFIT WMGT 436 Requirements and Optimization and AFIT WENG 370 Control Systems Cybersecurity for CE Leaders courses are mandatory.

B2.3.9. Must complete the Electrical Systems Craftsman Course (J3ACR3E071 00AC) for seven skill level award. Members attending this course must have completed all OJT requirements for upgrade to the 7-skill level prior to attending this course.

B2.3.10. After all upgrade training requirements are completed, supervisors and UTMs coordinate upgrade procedures.

B2.3.11. Completion of Troop Construction Project Management Course (AFIT WMGT 437) is mandatory for Active Duty and required for promotion to MSgt. This course is highly encouraged for Air Reserve Component MSgts. Note: This is not a skill level-awarding course.

B2.4. **Superintendent. (AFSC 3E490 - SMSgt)**

B2.4.1. A superintendent can be expected to fill positions such as Flight Chief, Section Chief, Superintendent, and various staff positions.

B2.4.2. Completion of Civil Engineer Superintendent Course (AFIT WMGT 570) is mandatory for Active Duty and Air Force Reserve SMSgts. This course is highly encouraged for Air National Guard SMSgt's and mandatory to be promoted to CMSgt.
Note: This is not a skill level awarding course.

B2.4.3. Must complete the appropriate Resident EPME as outlined in Air Force Instruction, 36-2670 *Total Force Development.*

B2.4.4. Should take continuation training course to increase knowledge of budget, manpower, resources, and personnel management.

B2.4.5. Continue academic development through higher education is recommended.

B2.4.6. Must be a SMSgt for award of the 9-skill level.

B2.5. **Chief Enlisted Manager (CEM) (3E000 - CMSgt).**

B2.5.1. CEMs work in a variety of similar jobs and functional areas where general managerial and supervisory abilities can be most effectively used and challenged.

B2.5.2. Must be selected for CMSgt and possess qualifications in a feeder specialty (3E090, 3E290, 3E490, 3E591, or 3E691).

B2.5.3. must complete the appropriate Resident EPME as outlined in Air Force Instruction, 36-2670, *Total Force Development*.

B3. Training Decisions. The CFETP uses a building block approach (simple to complex) to encompass the entire spectrum of training requirements for the Electrical Systems career field. The spectrum includes a strategy for when, where, and how to meet the training requirements. The strategy must be apparent and affordable to reduce duplication of training and eliminate a disjointed approach to training. The following decisions were made by a career field Specialty Training Requirements Team (STRT) held at Sheppard AFB, TX on the 24 Jun – 27 Jun 2019.

B3.1. **Initials Skills Training.** The initial skills course was reviewed for content. Additions, deletions, and modifications were made to the course. Wartime training tasks were identified and validated.

B3.2. **Five Level Upgrade Training Requirements.** Existing CDCs were reviewed and updated to ensure only current material remained and new technology information was added.

B3.3. **Seven Level Upgrade Training Requirements.** Seven-level training requirements were reviewed and validated.

B3.4. **Proficiency Training.** Any additional knowledge and skill requirements that were not taught through initial skills or upgrade training are assigned as continuation training. Purpose of continuation training is to provide training exceeding minimum upgrade training requirements

with emphasis on present and future duty positions. MAJCOMs must develop a continuation-training program that ensures personnel in the Electrical Systems career field receive the necessary training at the appropriate point in their careers. The training program will identify both mandatory and optional training requirements.

B3.5. **Supplemental Training.** Subject Matter Experts (SMEs) and the Training Committee reviewed supplemental training courses for technical accuracy and identified training that was no longer required. They revalidated the remaining courses, as necessary to fully support career progression in the AFS.

B4. Community College of the Air Force (CCAF) Academic Programs. Enrollment in the Community College of the Air Force occurs upon completion of Basic Military Training. Community College of the Air Force provides the opportunity to obtain an Associate of Applied Sciences Degree. In addition to its associate degree program, CCAF offers the following:

B4.1. **Occupational Instructor Certification.** Upon completion of instructor qualification training, consisting of the instructor methods course and supervised practice teaching, Community College of the Air Force instructors who possess an associate degree or higher may be nominated by their school commander and commandant for certification as an occupational instructor

B4.2. **Trade Skill Certification.** When a CCAF student separates or retires, a trade skill certification is awarded for the primary occupational specialty. The college uses a competency-based assessment process for trade skill certification at one of four proficiency levels: Apprentice, Journeyman, Craftsman (Supervisor), or Master Craftsman (Manager). All are transcribed on the CCAF transcript.

B5. CCAF Degree Completion Requirements (64 Semester Hours). The Mechanical & Electrical Technology Associates Degree (4VGA) applies to the 3E0X1 AFSC. Prior to completing a CCAF degree, the individual must be awarded a 5-level and the following requirements must be met:

Course	Semester Hours
Technical Education	24
Leadership, Management, and Military Studies	6
Physical Education	4
General Education	15
Program Elective	15
Technical Education; Leadership, Management, and Military Studies or General Education	
Total	**64**

B5.1. **Technical Education. (24 semester hours)** A minimum of 12 semester hours of Technical Core subjects and courses must be applied and the remaining semester hours applied from Technical Core or Technical Elective subjects and courses.

PART I

Technical Core Requirements	Semester Hours
CCAF Internship	18
Electrical Power Production	20
Electrical Systems	20
Heating Systems	20
Liquid Fuel Systems	20
Refrigeration and Air Conditioning	20
Utilities Systems	20
Waste Management	3

B5.2. **Technical Electives.**

Technical Electives	Semester Hours
Air Distribution and Filtering Systems	3
Alternate Heating and Cooling	3
Blueprint Reading/Schematic Diagrams	6
Building Codes and Ordinance	3
Computer Science	6
Control Systems/Maintenance	6
Electricity/Electronics	9
Engine Principles	3
Environmental Awareness	3
Environmental Compliance	3
Fire-Suppression Systems	6
General Chemistry	8
General Physics	4
Hazardous Materials	6
Industrial Management	3
Industrial Safety	3
Motor, Starter, and Control Devices	6
Natural Gas Distribution	6
Quality Assurance	3
Technical Mathematics (College Algebra or Higher)	3
Technical Physics	4
Technical Writing	3
Vehicle Operation/Maintenance	4
Welding and Pipefitting	3

B5.3. **Leadership, Management, and Military Studies** (6 Semester Hours): Professional military education, civilian management courses accepted in transfer and/or by testing credit.

B5.4. **Physical Education** (4 Semester Hours): This requirement is satisfied by completion of Basic Military Training.

PART I

B5.5. **General Education (15 Semester Hours):** Courses must meet the criteria for application of courses to the general education requirements and be in agreement with the definitions of applicable general education subjects/courses as provided in the *CCAF General Catalog*.

General Education Subjects/Courses	Semester Hours
Communications	6
English Composition (not duplicative) or Oral Communication Speech	3
Written Communication English Composition	3
Mathematics	3
Intermediate algebra or a college-level mathematics course satisfying delivering institutions mathematics graduation requirement-if an acceptable mathematics course applies as technical or program elective, you may substitute a natural science course for mathematics.	
Social Science	3
Anthropology, archaeology, economics, geography, government, history, political science, psychology, and sociology.	
Humanities	3
Fine arts (criticism, appreciation, historical significance), foreign language, literature, philosophy, and religion.	

B5.6. **Program Elective.** (15 semester hours). Satisfied with applicable Technical Education; Leadership, Management, and Military Studies; or General Education subjects and courses, including natural science courses meeting General Education Requirements application criteria. Six semester hours of Community College of the Air Force degree applicable technical credit otherwise not applicable to this program may be applied. See the Community College of the Air Force General Catalog for details regarding the Associates of Applied Sciences degree for this specialty.

B5.7. Additional off-duty education is a personal choice that is encouraged for all. Individuals desiring to become an AETC Instructor should be actively pursuing an associate degree. A degreed faculty is necessary to maintain accreditation through the Southern Association of Colleges and Schools.

B5.7.1. **CCAF offers the Instructional Systems Development (ISD) Certification.** The ISD Certification is a professional credential that recognizes the writers or managers' extensive training, education, qualifications and experience required to develop and manage CCAF courses. The certification also recognizes the individuals ISD qualifications and experience in planning, developing, implementing and managing instructional systems. The program is designed to broaden faculty and professional development.

B5.7.2. **Air Force Credentialing Opportunities On-Line (AF COOL) Program.** AF COOL replaced the CCAF Credentialing and Education Research Tool (CERT). The AF COOL program provides a research tool designed to increase an Airman's awareness of national professional credentialing and CCAF education opportunities available for all Air Force occupational specialties. The AF COOL Program also provides information on specific occupational specialties, civilian occupational equivalencies, CCAF degree programs, and AFSC-related national professional credentials available to enlisted members through credentialing agencies and

professional organizations. The AF COOL Program contains a variety of information about credentialing and licensing and can be used to:

B5.7.2.1. Get background information about civilian licensure and certification in general and specific information on individual credentials including eligibility requirements and resources to prepare for an examination.

B5.7.2.2. Identify licenses and certifications relevant to an AFSC.

B5.7.2.3. Learn how to fill gaps between Air Force training and experience and civilian credentialing requirements.

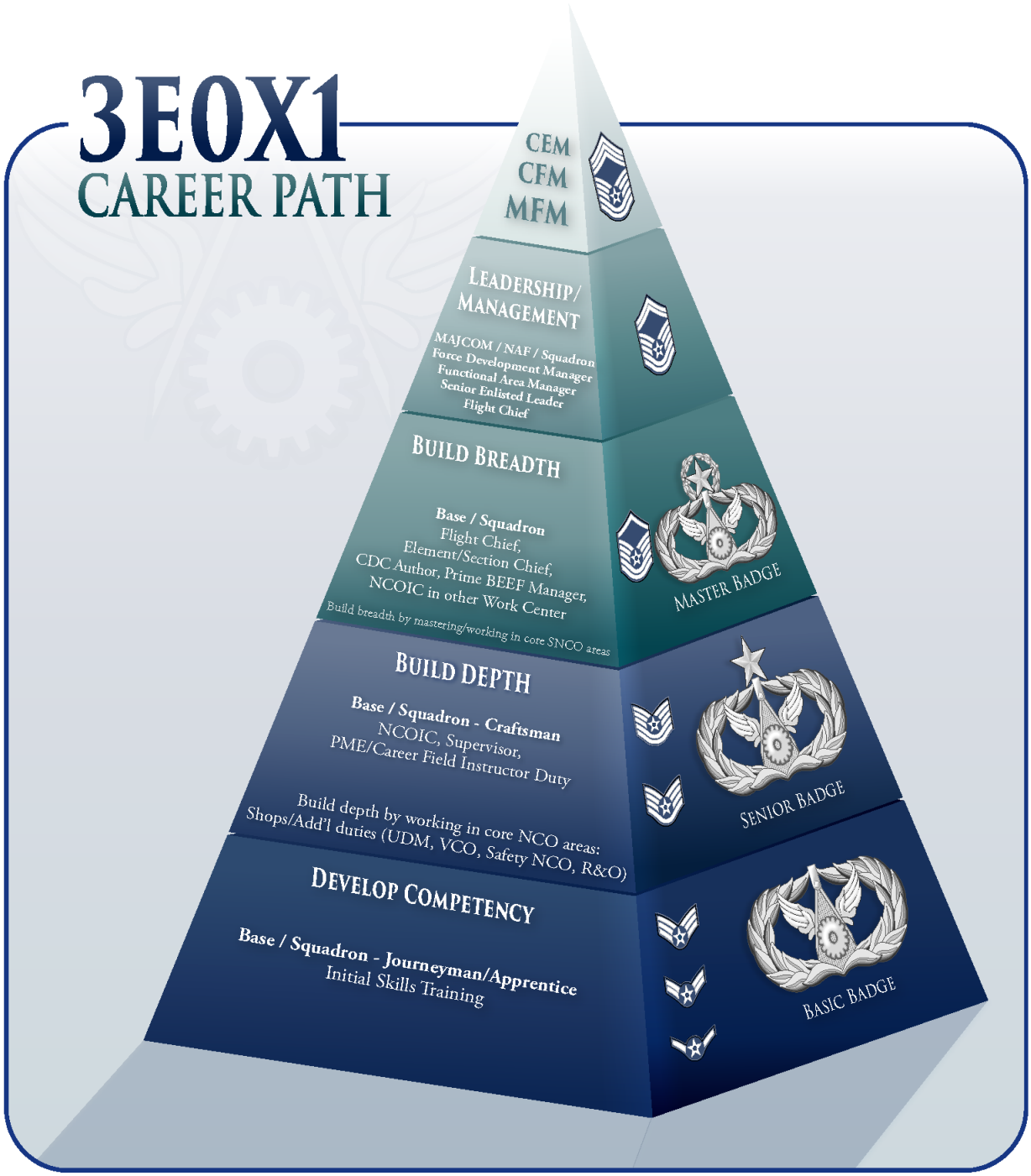
B5.7.2.4. Get information on Tuition Assistance and GI Bill eligible funding opportunities to pay for credentialing examinations and associated fees.

B5.7.2.5. Learn about resources available to you that can help gain civilian job credentials.

B5.7.3. **Air University Associate to Baccalaureate Cooperative (AU-ABC).** AU-ABC directs Airmen with associate in applied science degrees from the CCAF to a collection of accredited "military friendly" colleges and universities to consider when completing a four-year degree. The program maximizes the application of military career education and training, and provides a multitude of online academic and support services for the enlisted member.

PART I

B6. Civil Engineer Career Field Path. The following chart depicts the 3E0X1 specialty career path:



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B7. Enlisted Training Path.

ENLISTED CAREER PATH				
Education and Training Requirements	**GRADE REQUIREMENTS**			
	Rank	Average Sew-On	Earliest Sew-On	High Year Of Tenure (HYT) (Active Duty Only)
Basic Military Training School				
Apprentice Technical School (3-Skill Level) – Complete Technical School	Amn A1C	6 months 16 months		
Upgrade To Journeyman (5-Skill Level) – Complete 5-level CDC – Complete CE 5-Level Core Concept and Confined Space web-based course – Complete all 5-level core/duty related tasks – Minimum 12 months OJT (9 months for retrainees) – Complete AFIT WMGT 131, AFIT WMGT 301 and AFIT WENG 170 courses	SrA	3 years	28 months Below-the-Zone (BTZ) (22 months)	10 years
Trainer – Must be qualified and certified to perform task(s) to be trained – Attend AF Training Course – Recommended by the supervisor				
Upgrade To Craftsman (7-Skill Level) – Minimum rank of SSgt – Complete CE 7-Level Core Concept web-based course – Complete all core/duty related tasks – Minimum 12 months OJT (6 months OJT for retrainees) – Complete AFIT WENG 200, AFIT WMGT 322, AFIT WMGT 436 and AFIT WENG 370 courses	SSgt TSgt	5 years 9 years	3 years 5 years	20 years 22 years
Certifier – SSgt with 5-skill level or civilian equivalent – Attend AF Training Course – Appointed by commander – Be someone other than the trainer (for core and critical tasks only)				
Upgrade To Superintendent (9-Skill Level) – Minimum rank of SMSgt – CE Superintendents Course (WMGT 570) (AD/AFR Only, not skill level awarding)	SMSgt	20 years	11 years	26 years
MSGT – Completion of Troop Construction Project Management Course (AFIT WMGT 437) is mandatory for Active Duty and required for promotion to MSgt. This course is highly encouraged for Air Reserve Component MSgts. Note: this is not a skill level-awarding course.				
Chief Enlisted Manager – CE Superintendents Course (WMGT 570) (ANG Only)	CMSgt	22 years	14 years	30 years

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B7.1. **CE Occupational Badge.** The Civil Engineer badge reflects a great history and tradition. By wearing it, you will be recognized by your fellow airmen as having achieved an expected level of competence. The multitude of engineers before you established this expectation through excellent service in both peace and war. Eligibility criteria for award and wear of AF occupational badges can be found in AFI 36-2903, *Dress and Personal Appearance of Air Force Personnel*.

B7.2. **CE Badge Heraldry.** The gear wheel and compass have historically been used to represent the engineering profession, in both the military and civilian sector. The gear represents the essence of engineering: applying scientific principles and technology to practical ends. To Air Force engineers, the gear symbolizes an element (representing the built environment) that meshes with other environments (weapon systems and trained personnel) to enable the Air Force to perform its mission. The compass is a precision tool historically used by engineers in designing and constructing facilities and equipment. The gear and compass together symbolize all the diverse specialties within Air Force civil engineer. Finally, the wings help to portray the fundamental linkage between the engineering and aviation components; and that the built environment is the foundation supporting Air Force mission and people.

B7.2.1. **Basic Badge.** The basic badge is awarded upon successful completion of the apprentice course.

B7.2.2. **Senior Badge.** The senior badge adds a star to the top of the badge. Wear the senior badge after award of the 7-skill level.

B7.2.3. **Master Badge.** The master badge adds a wreath around the star. The Master Badge is awarded to Master Sergeant or above with 5 years in the specialty from award of the 7-skill level

PART I

B8. Enlisted Professional Military Education (EPME).

B8.1. Basic EPME (Distance Learning). Basic EPME requirements are completed via distance learning (DL) courses to establish a foundation for continued development and include the Noncommissioned Officer (NCO) DL and Senior Noncommissioned Officer (SNCO) DL courses. Effective 26 Apr 2018, NCO DL and SNCO DL courses are no longer a prerequisite to attend resident NCO Academy and SNCO Academy, respectively.

B8.2. Resident EPME (In-residence). Resident EPME requirements include Airman Leadership School (ALS), NCOA, SNCOA and the Chief Leadership (CL) course. Resident EPME completion is required for promotion to the grades of SSgt, MSgt and CMSgt.

B8.2.1. **Resident EPME Eligibility Chart.**

EPME Course	Selection Priority
ALS	1. SSgts/SSgt-selects 2. SrA
NCOA	1. TSgts 2. TSgt-selects
SNCOA	1. SMSgts 2. SMSgt-selects 3. Non-selects to SMSgt based on combined U.S. Air Force Supervisory Examination and promotion board score (highest to lowest)
CLC	1. CMSgts 2. CMSgt-selects

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SECTION C - SKILL LEVEL TRAINING REQUIREMENTS

C1. Purpose. Skill level training requirements in this specialty are defined in terms of tasks and knowledge requirements. This section outlines the specialty qualification requirements for each skill level stated in broad, general terms and establish the mandatory requirements for entry, award, and retention of each skill level. The specific task and knowledge training requirements are identified in the Specialty Training Standard at Part II, Section A and B of this CFETP.

C2. Specialty Qualification. Refer to Air Force Enlisted Classification Directory (AFECD) for the most current minimum requirements for entry into Electrical Systems career field. See AFECD attachment 4 for additional entry physical requirements.

C2.1. **Apprentice (3-Level) Training Requirements. (3E031)**

KNOWLEDGE	Completion of the Electrical Systems Apprentice course pipeline, J8AQR3E031 01AB and J3ABR3E031 01AC, at Sheppard AFB, TX
EDUCATION	For entry into this specialty, completion of high school with courses in science, mathematics, and shop mechanics is desirable.
TRAINING	Completion of the Electrical Systems Apprentice course is mandatory for award of this skill level.
EXPERIENCE	None required.
OTHER	For entry, award and retention of AFSC 3E031, must possess a valid state driver's license to operate government motor vehicles (GMV) IAW with AFI 24-301, *Ground Transportation*. Freedom from fear of heights (acrophobia). Normal color vision as defined in DAFI 48-123, *Medical Examinations and Standards.* Maintain local network access IAW AFI 17-130, *Cybersecurity Program Management* and AFMAN 17-1301, *Computer Security (COMPUSEC).*
IMPLEMENTATION	The 3-skill level is awarded upon graduating the apprentice course and submission by the Unit Training Manager at the member's unit of assignment.
TRAINING SOURCES & RESOURCES	Reference PART II, SECTIONS: B - COURSE OBJECTIVE LIST (COL); C - SUPPORT MATERIAL; D – EDUCATION AND TRAINING COURSE INDEX; E – MAJCOM UNIQUE REQUIREMENTS; F - HOME STATION TRAINING

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C2.2. **Journeyman (5-Level) Training Qualifications. (3E051)**

KNOWLEDGE	Must have knowledge on: the principles of electricity and electronics, to include computation and measurement of common properties (resistance, inductance, capacitance, voltage, and current); Transformers and regulator operations and connection; Grounding and lightning protection systems; Working on high and low voltage energized and de-energized lines; Applications of safety requirements related to installation and maintenance of electrical distribution systems; Principles of fire alarms, cathodic protection systems, and airfield lighting systems; Reading electrical schematics and one-line diagrams; Rescue and resuscitation of electrical shock victims; Environmental concerns and safety precautions required when using and storing hazardous materials
EDUCATION	The following education is desirable and strongly encouraged: CCAF Mechanical & Electrical Technology Associates Degree (4VGA)
TRAINING	Completion of 5-level CDCs. Completion of all the paper-based AFQTPs and their associated web-based courses on myLearning for all core (5^) and diamond (♦) tasks with a minimum passing score of 80%. Completion of the CE 5-Level Common Core Concept web-based course located on myLearning is mandatory for award of this skill level. Completion of AFIT WMGT 131 SMS Builder, AFIT WMGT 301 Intro to Asset Management and AFIT WENG 170 Cybersecurity for Control Systems courses are mandatory. Certification of all 5-skill level core tasks identified with a (5^) in the task column of the STS. Certification of 5-skill level diamond tasks identified with a diamond (♦) in the task column, if the equipment is available. Minimum requirement is the signing off tasks on the AFQTP Documentation Record. Supervisor certification of duty position requirements. **The following training is desirable and strongly encouraged:** Completion of the J3AZR3E051 04AC (21 days), in residence, CE Advanced Electrical Troubleshooting at Sheppard AFB, TX. Completion of the J3AZR3E051 07AD (23 days), in residence, Electrical Distribution System Maintenance at Sheppard AFB, TX. Completion of the J3AZR3E051 05AC (9 days), in residence, Airfield Lighting Systems at Sheppard AFB, TX.

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EXPERIENCE	Qualification in and possession of AFSC 3E031. Experience in installing, maintaining, and repairing low and high voltage interior and exterior electrical systems and components. Minimum 12 months OJT (9 months for retrainees) before award of 5-skill level.
OTHER	For entry, award and retention of AFSC 3E051, must possess a valid state driver's license to operate government motor vehicles (GMV) in accordance with AFI 24-301, Vehicle Operations. Freedom from fear of heights. Normal color vision as defined in DAFI 48-123, *Medical Examinations and Standards.* Maintain local network access IAW AFI 17-130, *Cybersecurity Program Management* and AFMAN 17-1301, *Computer Security (COMPUSEC).*
TRAINING SOURCES & RESOURCES	Reference PART II, SECTIONS: B - COURSE OBJECTIVE LIST (COL); C - SUPPORT MATERIAL; D – EDUCATION AND TRAINING COURSE INDEX; E – MAJCOM UNIQUE REQUIREMENTS; F - HOME STATION TRAINING
IMPLEMENTATION	Entry into 5-level upgrade training is initiated after the individual has completed all 3-level requirements. Qualification training is initiated any time individuals are assigned duties they are not certified to perform. AFQTPs are used concurrently to obtain necessary duty position qualifications.

C2.3. **Craftsman (7-Level) Training Requirements. (3E071)**

KNOWLEDGE	All 3- and 5-level knowledge requirements apply to 7-level
EDUCATION	For entry into this specialty, completion of high school with courses in science, mathematics, and shop mechanics is desirable. The following education is desirable and strongly encouraged: CCAF Mechanical & Electrical Technology Associates Degree (4VGA) Higher education through a civilian institution

PART I

TRAINING	Completion of all the paper-based AFQTPs and their associated web-based courses on myLearning for all 7- skill level core (7^) and diamond (♦) tasks with a minimum passing score of 80%. Completion of the CE 7-Level Common Core Concept web-based course located on myLearning is mandatory for award of this skill level. Certification of all 7- skill level core tasks identified with an asterisk (7^) in the task column of the STS. Completion of AFIT WENG 200, AFIT WMGT 322 Intro to Project Management, AFIT WMGT 436 Requirements and Optimization AFIT WENG 370 Control Systems Cybersecurity for CE Leaders courses are mandatory. Certification of all 7-skill level diamond tasks identified with a diamond (♦) in the task column of the STS if the equipment is available. Minimum requirement is the signing off tasks on the AFQTP Documentation Record. Certification of duty position requirements identified by the supervisor. Completion of the 10 day Electrical Systems Craftsman Course (J3ACR3E071 00AC) for award of the seven skill level is required. Members attending this course must have completed all OJT requirements for upgrade to the 7-skill level prior to attending this course. The following training is desirable and strongly encouraged: Completion of the J3AZR3E051 04AC (21 days), in residence, CE Advanced Electrical Troubleshooting at Sheppard AFB, TX. Completion of the J3AZR3E051 07AD (23 days), in residence, Electrical Distribution System Maintenance at Sheppard AFB, TX. Completion of the J3AZR3E051 05AC (9 days), in residence, Airfield Lighting Systems at Sheppard AFB, TX. Completion of the J5AZB3E051 00AA (3.5 days), in residence, AMMO-47 Lightning Protection for Air Force Facilities at various locations.
EXPERIENCE	Qualification in and possession of AFSC 3E051. Experience in installing, maintaining, and repairing low and high voltage interior and exterior electrical systems and components. Must be SSgt with minimum 12 months OJT (6 months for retrainees).

OTHER	For entry, award and retention of AFSC 3E071, must possess a valid state driver's license to operate government motor vehicles (GMV) in accordance with AFI 24-301, Vehicle Operations. Freedom from fear of heights. Normal color vision as defined in DAFI 48-123, *Medical Examinations and Standards.* Maintain local network access IAW AFI 17-130, *Cybersecurity Program Management* and AFMAN 17-1301, *Computer Security (COMPUSEC).* Electrical Systems craftsmen should pursue any additional knowledge and skill requirements that were not taught through initial skills or upgrade training. The purpose of ongoing training is to exceed minimum upgrade requirements with emphasis on Electrical personnel achieving the necessary training and experience at the appropriate point in their career to be more effective in present and future duty positions. Recommended areas of study include but are not limited to: AFIT Training courses
MSGT	Completion of Troop Construction Project Management Course (AFIT WMGT 437) is mandatory for Active Duty and required for promotion to MSgt. This course is highly encouraged for Air Reserve Component MSgts. Note: this is not a skill level-awarding course.
TRAINING SOURCES & RESOURCES	Reference PART II, SECTIONS: B - COURSE OBJECTIVE LIST (COL); C - SUPPORT MATERIAL; D – EDUCATION AND TRAINING COURSE INDEX; E – MAJCOM UNIQUE REQUIREMENTS; F - HOME STATION TRAINING
IMPLEMENTATION	Entry into 7-level training is initiated when an individual is selected for SSgt and is fully qualified in the AFSC 5-skill level. Qualification training is initiated any time individuals are assigned duties they are not qualified to perform. Use OJT, CDCs, AFJQSs, and AFQTPs concurrently to obtain the necessary qualifications.

C2.4. **Superintendent (9-Level) Training Requirements. (3E090)**

KNOWLEDGE	Principles of electricity and electronics, electrical circuitry and distribution systems above and below 600 volts, internal combustion engines and other prime movers for electrical generating systems and mechanically driven devices, fire alarms, lightning protection systems, cathodic protection systems, airfield lighting systems, aircraft arresting systems, wiring diagrams, and schematics, technical publications and Air Force directives, unified facilities criteria, and environmental and safety regulations and practices.
EDUCATION	The following education is desirable and strongly encouraged: CCAF Mechanical & Electrical Technology Associates Degree (4VGA) Higher education through a civilian institution Completion of the grade appropriate EPME is mandatory.

TRAINING	Completion of Civil Engineer Superintendent Course (AFIT WMGT 570) conducted at Air Force Institute of Technology, Wright-Patterson AFB, OH is mandatory for Active Duty and Air Force Reserve SMSgts. This course is highly encouraged for Air National Guard SMSgts and mandatory to be promoted to CMSgt. Note: This is not a skill level awarding course.
EXPERIENCE	For award of AFSC 3E090, qualification in and possession of AFSC 3E071 or 3E072 is mandatory. Must be a SMSgt Management of Civil Engineer functions such as inspecting, operating, maintaining, and repairing interior and exterior electrical systems, electrical power generating equipment and systems, fire alarms, lightning protection, cathodic protection systems, airfield lighting systems, and aircraft arresting
OTHER	Maintain local network access IAW AFI 17-130, *Cybersecurity Program Management* and AFMAN 17-1301, *Computer Security (COMPUSEC).* Facility Systems Superintendents should pursue any additional knowledge and skill requirements that were not taught through initial skills or upgrade training. The purpose of ongoing training is to exceed minimum upgrade requirements with emphasis on Electrical personnel achieving the necessary training and experience at the appropriate point in their career to be more effective in present and future duty positions. Recommended areas of study include but are not limited to AFIT Training courses, such as Project Management courses and Contract Management courses. For award and retention of AFSC 3E090, must possess a valid state driver's license to operate government motor vehicles (GMV) IAW AFI 24-301, *Vehicle Operations*. Normal color vision as defined in DAFI 48-123, *Medical Examinations and Standards*.
IMPLEMENTATION	Entry into 9-level training is initiated when an individual is selected for SMSgt and is a fully qualified 7-Level. Qualification training is initiated any time an individual is assigned duties they are not certified to perform.

C2.5. Chief Enlisted Manager. (3E000)

KNOWLEDGE	Knowledge is mandatory for managing and directing personnel resource activities, interpreting and enforcing policy and applicable directives, establishing control procedures to meet work goals and standards, recommending or initiating actions to improve operational efficiency, planning and programming work commitments and schedules, developing plans regarding facilities, supplies, and equipment procurement and maintenance.
TRAINING	Reserve Component Chief Orientation Course (AFRC only).

PART I

EXPERIENCE	Possess qualifications in feeder specialty (3E090) prior to award of Civil Engineer Manger code 3E000. Managerial ability to plan, direct, coordinate, implement, and control a wide range of work activity.
EDUCATION	Completion of the grade appropriate EPME is mandatory.
OTHER	NA
TRAINING SOURCES & RESOURCES	Reference PART II, SECTIONS: B - COURSE OBJECTIVE LIST (COL); C - SUPPORT MATERIAL; D – EDUCATION AND TRAINING COURSE INDEX; E – MAJCOM UNIQUE REQUIREMENTS; F - HOME STATION TRAINING
IMPLEMENTATION	Entry into Civil Engineer Manager Code 3E000 is initiated when an individual is selected for CMSgt and possess qualifications in a feeder specialty (3E090, 3E290, 3E490, 3E591, and 3E691).

PART I

SECTION D - RESOURCE CONSTRAINTS

D1. Purpose. This section identifies known resource constraints, which preclude optimal and desired training from being developed or conducted, including information such as cost and manpower. Explanations of each resource constraint and an impact statement describe what effect each constraint has on training, are included. Also included in this section are actions required, office of primary responsibility, and target completion dates. Resource constraints will be, as a minimum, reviewed and updated annually. Currently, there are no resource constraints for the Electrical Systems specialty.

D2. Apprentice (3-Level) Training. None

D2.1. Constraints.

D2.1.1 Impact.

D2.1.2. Resources Required.

D2.1.3. Action Required.

D2.2. OPR/Target Completion Date.

D3. Journeyman (5-Level) Training. None

D3.1. Constraints.

D3.1.1. Impact.

D3.1.2. Resources Required.

D3.1.3. Action Required.

D3.2. OPR/Target Completion Date.

D4. Craftsman (7-Level) Training. None.

D4.1. Constraints.

D4.1.1. Impact.

D4.1.2. Resources Required.

D4.1.3. Action Required.

D4.2. OPR/Target Completion Date.

D5. Superintendent (9-Level) Training. None.

PART I

SECTION E – TRANSITIONAL TRAINING GUIDE

"There are no transition training requirements for the Electrical Systems specialty. This section is reserved."

PART II

SECTION A - SPECIALTY TRAINING STANDARD

A1. Implementation. This STS will be used for technical training provided for the AETC Electrical Systems Apprentice Training course with class beginning 1 Dec 2020 and graduating on or after 21 Apr 2021 and the Electrical Systems Craftsman course with class beginning 8 Jun 2021 and graduating on or after 21 Jun 2021.

A2. **Purpose.** As prescribed in AFI 36-2670 *Total Force Development,* and in collaboration with the Air Force Civil Engineer Career Field Manager (CFM), it is mandatory for all civil engineers, regardless of duty assignment; to use paper based records or an automated training record.

A2.1. **Column 1 (*Tasks, Knowledge, and Technical References*).** Lists the most common tasks, knowledge, and supporting technical references (TRs) necessary for Airmen to perform duties in the 3-, 5-, and 7-skill level.

A2.1.1. **Task Qualification Tasks (TQT)**. In accordance with AFI 10-2501, TQT requirements identified by (TQT) after the line item of the STS are mandatory wartime skills that Airmen will perform while wearing Individual Protective Equipment.

A2.2. **Column 2 (*Core Tasks*).** Column 2 identifies core tasks (specialty-wide training requirements) by a number (5^ or 7^) in the skill level column. **As a minimum, trainees must complete all core and critical tasks for skill level upgrade.**

A2.2.1. **Wartime Tasks.** All tasks in the 3-level course column are considered wartime tasks. In response to a wartime scenario, these tasks will be taught in a streamlined training environment.

A2.2.2. **Diamond Tasks.** Tasks identified by a diamond (♦) after the line item are considered contingency/war tasks and are critical to the career field. Equipment shortfalls at most locations have created problems with the actual hands-on certification of these tasks. In instances where required equipment is not available for instruction, completion of the corresponding task AFQTP is all that is required for upgrade/qualification training.

A2.3. **Column 3 (*Certification for OJT).*** Used to record completion of tasks and knowledge training requirements. Use paper based records or automated training management application to document technician qualifications. **Task certification of core and critical tasks** require a training completion date and initials of the trainee, trainer, and certifier. All non-core tasks require training completion date and initials of the trainee and trainer only.

A2.4. **Column 4 (*Proficiency Codes Used To Indicate Training/Information Provided*).** Indicates formal training and correspondence course requirements. It shows the proficiency to be demonstrated on the job by the graduate as a result of task training and career knowledge provided by formal courses, correspondence courses, web-based training, and AFQTPs. See the UTM for the current CADRE/AFSC/CDC/DL Course listing.

A2.5. **Qualitative Requirements.** The CFETP proficiency code key used to indicate the level of training and knowledge provided by web-based and in-resident training, and career development courses.

PART II

A2.6. Job Qualification Standard (JQS). The STS becomes a JQS for OJT when placed in the automated training application and used according to AFI 36-2670, *Total Force Development*. 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 procedures. AFQTPs, when available, shall be used to identify Air Force standardized procedures. When used as a JQS, the following requirements applies:

A2.6.1. **Documentation.** Document and certify completion of training:

A2.6.1.1. **Duty position.** Duty position requirements will be developed and identified by the work center supervisor and loaded into the automated training management application. Completion of core, critical, and diamond tasks are mandatory for all duty positions. Ensure the correct duty position title is listed under Profile 1 section of the trainees' automated training record.

A2.6.1.2. **AFQTP Training and Documentation.** AFQTP or AFQTP assessments have been created for all core (5^ or 7^) tasks and completion are mandatory to fulfill task knowledge requirements for upgrade/qualification training. Each AFQTP provides the step–by–step procedures for the trainee, trainer, and certifier in completing each core or diamond task and instructions on how to document the training in the individual automated training record.

A2.6.1.2.1. **Training.** Documentation of the start and completion of the AFQTP in the *QTP section* located in the automated training record is required for all core tasks. The automated training record will not let you sign off any tasks in the JQS until the completion date has been entered. Diamond tasks require the completion of the web-based course (with the review and post-test located in the program) or completion of the AFQTP assessment located on myLearning to determine if the trainee has attained the knowledge level required. Once the trainee has completed the web-based course or AFQTP assessment, the course completion certificate must be provided to the trainer/supervisor for documentation of the completion in the automated training record and completion of hands-on training, if the equipment is available.

A2.6.1.2.2. **Hands-On Training.** *DO NOT sign off the tasks in the JQS until the trainee has completed hands-on/certification training.* For diamond tasks, if the equipment is not available at home station, the completion of the AFQTP or AFQTP assessment is the ONLY requirement for upgrade. When the equipment becomes available, either at home station or at a TDY location, the trainee can be signed off on the JQS tab in the automated training record.

A2.6.2. **Transcribing from previous versions to new CFETP.** Most items should transcribe automatically during updates to a CFETP. The UTM and supervisor must conduct a review of the new STS to identify any new core, or non-core tasks and add those tasks to their duty positions.

A2.6.2.1. **Previous training certification not listed.** If previous training certification is not listed in the individual record, select the parent task to be transcribed, check the task title(s) block, 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

A2.6.2.2. **Transcribing external training certification.** If a trainee attended a formal training

course and received appropriate accreditation, select the 623 III 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 UTM 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.

A2.6.3. **Documenting Career Knowledge.** When a CDC/DL course is not available, the supervisor identifies STS training references that the trainee requires for career knowledge IAW AFI 36-2670 *Total Force Development* and ensures, as a minimum, that trainees cover all mandatory items specified in AFM 36-2100, *Military Utilization and Classification.* For two-time CDC/DL course exam failures, the unit commander will take appropriate action IAW AFI 36-2670.
Note: Career knowledge must be documented prior to submitting a CDC/DL course waiver.

A2.6.4. **Decertification.** When an Airman is found to be unqualified on a task, the supervisor shall identify the task in the JQS and check the box next to the task title. The supervisor shall select the Decertify button on the screen menu and enter a 623a comment explaining why the task was decertified, and then enter the Airman into qualification training. The individual is recertified using the normal certification process.

A2.6.5. **Recertification.** When an Airman is required to be recertified on a previous task due to annual or bi-annual requirements. The supervisor shall identify the task in the JQS, check the box next to the task title, select the Recertify button on the screen, and enter the dates the recertification was completed.

A2.6.6. **Training Standard.** Tasks are trained and certified to the "go" level. Go means the individual can perform the task without assistance and meets the local requirements for accuracy, timeliness, and correct use of procedures. This equates to a 3c in the proficiency code key. AFQTPs, when available, shall be used to identify Air Force standardized procedures.

A2.7. **Specialty Training Standard.** The STS is a guide for development of promotion tests used in the Weighted Airman Promotion System (WAPS). Senior NCOs develop Specialty Knowledge Tests at the USAF Airman Advancement Division with extensive practical experience in their career fields. Subject matter experts, who authenticate WAPS material and reference AF Specialty-specific occupational analysis data, develop knowledge tests. Questions are based upon study references listed in the Enlisted Promotions References and Requirements Catalog. Individual responsibilities are in AFM 36-2664, *Personnel Assessment Program.* WAPS is not applicable to the Air National Guard or Air Reserve Forces.

A3. Recommendations. Comments and recommendations are invited concerning quality of training AETC graduates receive. Reference this STS and address your correspondence regarding changes to 782 TRG/TGE, 917 Missile Road, Rm 1A300, Sheppard AFB TX 76311-2368 or E-mail 782csil@us.af.mil. A Customer Service Information Line (CSIL) has been installed for the supervisor's convenience to identify graduates who may have received over or under training on tasks/knowledge items listed in this STS. For a quick response to problems, call the CSIL at DSN 736-2574 any time day or night.

PART II

SECTION B - COURSE OBJECTIVE LIST (COL)

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

B1.1. Progress Check (PC) indicates formal measurement of knowledge and/or performance elements using a written or performance progress check.

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

B3. Proficiency Level. Most task performance is taught to the "2b" proficiency level, which means the student can do most parts of the task, but does need assistance on the hardest parts of the task (partially proficient). The student can also determine step-by-step procedures for doing the task.

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 objectives may be obtained by written request through the requesting organizations MAJCOM to the 366th Training Squadron Training Manager, Mr. Johnnie Williams.

PART II

SECTION C - SUPPORT MATERIAL

C1. Air Force Qualification Training Packages.

C1.1. The ***mandatory*** **AFQTP's** for each skill level are identified on the 3E0X1 AFQTP Documentation Record.

C1.1.1. For a complete list of up-to-date AFQTPs applicable to the 3E0X1 AFSC, go to CE DASH.

C1.2. The UTM or supervisor can download paper-based AFQTPs. Paper-based AFQTPs are found on CE DASH under documents in the AFQTP folder.

C1.2.1. 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 specialty topic area.

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

C2.1. FDMs have developed CDC assessments for their 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 Unit Commander, Unit Training Manager (UTM) and the supervisor, a predictive indicator of whether the trainee has studied sufficiently to successfully pass their CDC end of course (EOC) exam.

PART II

SECTION D – EDUCATION AND TRAINING COURSE INDEX

D1. Purpose. This section of the CFETP identifies training courses available for the Electrical Systems 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	Airfield Lighting Systems	366 TRS
J3ACR3E071 00AC	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 3E051D/Q	Electrical Systems Journeyman	01
CDC 3E051A	Electrical Systems Journeyman	04
CDC 3E051B	Electrical Systems Journeyman	04

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 370	Control Systems Cybersecurity for CE Leaders	AFIT

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WMGT 322	Introduction to Project Management	AFIT
WMGT 301	Intro to Asset Management	AFIT
WMGT 436	Requirements and Optimization	AFIT
WMGT 131	SMS Builder Course	AFIT
WMGT 437	Troop Construction Project Management	AFIT

D5. Courses/CDCs under Development/Revision

Course Number	Title	Date Due
CDC 3E0X1A	Electrical Systems Journeyman	1 Jun 2021
CDC 3E0X1B	Electrical Systems Journeyman	1 Jun 2021

PART II

SECTION E – MAJCOM UNIQUE REQUIREMENTS

"There are currently no MAJCOM unique requirements. This area is reserved."

PART II

SECTION F - HOME STATION TRAINING

F1. Purpose. The purpose of this section is to identify the tasks, training references, and training sources available in support of contingency/wartime training. Civil Engineer forces will train to meet the full range of tasks expected in the contingency environment. Training ranges from knowledge-type training conducted in a classroom, to task-oriented hands-on training conducted in the field. These training requirements, frequencies, and sources are listed in AFI 10-209, RED HORSE Program and AFI 10-210, Prime Base Emergency Engineer Force (BEEF) Program.

F2. Home Station Training (HST). HST is knowledge-based and hands-on training that is conducted at the individual's home station for contingency operations. The CE Commander ensures training is provided and documented and arranges for subject matter experts to conduct training as required. AFI 10-209, Attachments 2-6 and AFI 10-210, Attachments 2-6, identifies the personnel to be trained by specialty and frequencies.

F3. Combat Skills Training (CST). CST must be institutionalized as an integral part of any HST program. Lessons learned from operations such as IRAQI FREEDOM have taught us the importance of maintaining a higher level of combat readiness. Although the inclusion of combat skills-focused training into HST does not fully prepare CE personnel to work in a high threat combat environment, the steps taken to enhance training will help elevate units to a readiness level capable of supporting safe and effective operations in low to medium risk combat environments.

F4. Mission Essential Equipment Training (MEET). Wartime or contingency environments often involve the use of specialized and unique mission-essential equipment that civil engineers do not use in their day-to-day operations. Due to the cost and complexity, mission essential contingency equipment and trainer expertise are not commonly found at CONUS installations. Personnel must be hands-on certified and the certification documented in their CFETP. AFI 10-210, Attachment 4, identifies minimum number of personnel to be trained, positions by specialty, frequencies and Chapter 2 identifies the locations of training sites. Inadequate training on these key equipment items can negatively impact Air Force contingency operations.

F5. AF Expeditionary (ES) Training Requirement. AETC, as lead MAJCOM for AF ES training, revamped ancillary home-station and advanced (mission specific) expeditionary skills training plans to standardize and synchronize training across the force. Detailed requirements for AF ES training is available in AFI, 36-2670 *Total Force Development*.

F6. Training References.

F6.1. AFI 10-209, *RED HORSE Program,* Chapter 3 and Attachments 2-6 identify the RED HORSE recurring training requirements.

F6.2. AFI 10-210, *Prime Base Engineer Emergency Force (BEEF) Program,* Chapter 4 and Attachments 2-6 identify the Prime BEEF recurring training requirements.

F6.3. AFI 36-2670, *Total Force Development*, identifies ES training requirements.

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F6.4. Web-based Products. Web-based products are available on the myLearning website at https://lms-jets.cce.af.mil/moodle/. Personnel completing these courses can receive credit for HST. Group WBT products can be used in a classroom setting to train as many personnel as possible. Attendance must be documented on a sign-in roster. The sign-in roster must be maintained IAW AFI 10-210.

BY ORDER OF THE SECRETARY OF THE AIR FORCE

OFFICIAL

WARREN D. BERRY, Lieutenant General, USAF
DCS/Logistics, Engineering and Force Protection

3 Attachments
1. Qualitative Requirements (Proficiency Code Key)
2. 3E0X1 Specialty Training Standards (STS)
3. 3E0X1 AFQTP Documentation records

Attachment 1
Qualitative Requirements (Proficiency Code Key)

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*	

Note: Place a continuation sheet behind the CFETP when additional space is required.

Proficiency Code Key		
	Scale Value	**Definition: The individual**
Task Performance Levels	1	Can do simple parts of the task. Needs to be told or shown how to do most of the task. (Extremely Limited)
	2	Can do most parts of the task. Needs only help on hardest parts. (Partially Proficient)
	3	Can do all parts of the task. Needs only a spot check of completed work. (Competent)
	4	Can do the complete task quickly and accurately. Can tell or show others how to do the task. (Highly Proficient)
Task Knowledge Levels	a	Can name parts, tools, and simple facts about the task. (Nomenclature)
	b	Can determine step-by-step procedures for doing the task. (Procedures)
	c	Can identify why and when the task must be done and why each step is needed. (Operating Principles)
	d	Can predict, isolate, and resolve problems about the task. (Advanced Theory)
Subject Knowledge Levels	A	Can identify basic facts and terms about the subject. (Facts)
	B	Can identify relationship of basic facts and state general principles about the subject. (Principles)
	C	Can analyze facts and principles and draw conclusions about the subject. (Analysis)
	D	Can evaluate conditions and make proper decisions about the subject. (Evaluation)

Explanations	
5	This symbol in the core task column indicates that it is a 5-level core task.
7	This symbol in the core task column indicates that it is a 7-level core task.
9	This symbol in the core task column indicates that it is a 9-level core task.
^	This symbol in the core task column indicates that 3rd party task certification is required.
*	This symbol in the deployment/SEI column indicates that the task is a deployment task.
+	This symbol in the deployment/SEI column indicates that the task is a Special Experience Identifier.
2b/b	This mark in the course columns shows that training is required but not given due to resource limitations.
(I)(II)	These marks in the course columns are used to show that training is multi-service.
♦	A diamond in the task column indicates it is a core task, however due to equipment or funding constraint at some units, the completion of the AFQTP and/or web-based training course is all that is required for upgrade. Hands-on certification must be accomplished at the first opportunity when equipment or funding is available.
TQT	TQT in the task column indicates the task is a CBRN Qualification Task. IAW AFI 10-2501, these tasks will also be accomplished in MOPP 4 and annotated on the 623A or AF Form 797.
▲	A black triangle in the task column indicates an AFQTP is available for use.
△	A white triangle in the task column indicates an AFQTP is under development.
Specific tasks not identified with a symbol or proficiency code key indicates no training is provided in the course. Major commands and/or units may establish scale values and combat training as dictated by mission requirements.	
A task knowledge scale value may be used alone or with a task performance scale value to define a level of knowledge for a specific task.	
A subject knowledge scale value is used alone to define a level of knowledge for a subject not directly related to any specific task, or for a subject common to several tasks.	

Attachment 2
3E0X1 Specialty Training Standard (STS)

A2. Specialty Training Standard

A2.1. Identification. In the automated training record or paper based record, the User Profile section the UTM will assign individuals to the correct workcenter upon in processing into the unit.

Attachment 2
3E0X1 Specialty Training Standard (STS)

A2.2. Electrical Systems Specialty Tasks. The following are tasks the workcenter supervisor will use to create the duty task list for each duty position created for their workcenter.

1. Tasks, Knowledge and Technical References	2. Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided via DL and/or Course			
	A	B	A	B	C	D	E	A	B	C	D
	Core Cert ^	Deployment * SEI +	Tng Start	Tng Comp	Trainee Initials	Trainer Initials	Certifier Initials	3 Lvl	5 Lvl	7 Lvl	9 Lvl
1.0. CIVIL ENGINEER (CE) CORE CONCEPTS COURSES TR: myLearning											
1.1. Complete CE 5-level Core Concepts Course	5										
1.2. Complete CE 7-level Core Concepts Course	7										
1.3. Cyber Security concepts								A			
1.4. Complete WENG 170 Cybersecurity for Control Systems	5										
1.5. Complete WENG 370 Control Systems Cybersecurity for CE Leaders	7										
1.6. CE Core Concepts Overview								A			
2.0. Sustainment Management Systems (SMS)											
2.1. SMS Principles									B		
2.2. NexGen									B		
2.3. Document inspections into Builder										3c	
2.4. Complete AFIT WMGT 131 SMS Builder Course	5										
2.5. Complete AFIT WMGT 436 Requirements and Optimization	7										
3.0. AFS - SPECIFIC SAFETY STANDARD TR: AFM 32-1065, AFM 91-203; American Red Cross Handbook, American Heart Association; UFC 3-560-01; NFPA 70E											
3.1. Safe clearance operations									B		
3.1.1. Electrical facilities safe clearance forms											
3.1.1.1. Complete AF Form 979	5^							2b(I)			
3.1.1.2. Complete AF Form 980	5^							2b(I)			

Attachment 2
3E0X1 Specialty Training Standard (STS)

1. Tasks, Knowledge and Technical References	2. Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided via DL and/or Course			
	A	B	A	B	C	D	E	A	B	C	D
	Core Cert ^	Deployment * SEI +	Tng Start	Tng Comp	Trainee Initials	Trainer Initials	Certifier Initials	3 Lvl	5 Lvl	7 Lvl	9 Lvl
3.1.1.3. Complete AF Form 983	5^							2b(I)			
3.1.1.4. Complete AF Form 1213								a(I)		3c	
3.1.1.5. Utilize AF Form 269:											
3.1.1.5.1. When switching	7^							2b(I)			
3.1.1.5.2. When blocking and tagging	7^							2b(I)			
3.2. Safe Clearance Fundamentals									B		
3.3. Plan safe clearance	7^									3c	
3.4. Conduct safety meeting/tailgate briefing								b(I)		3c	
3.5. Select Arc Flash PPE								2b(I)		3c	
3.6. Management of 269 Program										B	
3.7. Management of Equipment status boards and logs									B	B	
3.8. Confined space											
3.8.1. Fundamentals								A(I)	B	B	
3.8.2. Safe entry procedures											
3.8.2.1. Test								2b(I)		3c	
3.8.2.2. Ventilate								2b(I)		c	
3.8.3. Complete Confined Space WBT	5^										
3.9. Rescue											
3.9.1. Fundamentals									B		
3.9.2. Perform pole top rescue								2b(I)			
3.9.3. Perform manhole rescue								2b(I)			
3.9.4. Perform aerial lift rescue								2b(I)			
3.9.5. Treat electric shock								b(I)			
3.10. Management of Rescue Programs										B	
3.11. Conducting supervisory maintenance safety assessment of distribution system											
3.11.1. De-energized Distribution Systems											
3.11.1.1. Fundamentals									B		

Attachment 2
3E0X1 Specialty Training Standard (STS)

1. Tasks, Knowledge and Technical References	2. Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided via DL and/or Course			
	A	B	A	B	C	D	E	A	B	C	D
	Core Cert ^	Deployment * SEI +	Tng Start	Tng Comp	Trainee Initials	Trainer Initials	Certifier Initials	3 Lvl	5 Lvl	7 Lvl	9 Lvl
3.11.1.2. Over 600 volts											
3.11.1.3. Under 600 volts											
3.11.2. Energized distruibution systems											
3.11.2.1. Fundamentals									B		
3.11.2.2. Over 600 volts											
3.11.2.3. Under 600 volts											
3.12. Conducting safety inspections and maintainence of:											
3.12.1. Live line equipment requirements									B		
3.12.2. Test hot line tools	5^							b(I)			
3.12.3. Test rubber personal protective equipment	5^							b(I)			
3.12.4. Test protective rubber equipment								b(I)			
3.12.5. Test polyethylene equipment								b(I)			
3.13. Management of Records Program for Hotline Tools and Equipment									B	B	
3.14. Perform cardiopulmonary resuscitation (CPR)								3c(I)			
3.15. Complete Fear of Heights assessment								3c(I)			
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									B		
4.2. Locate desired information in manuals, instructions, technical orders and forms											
4.2.1. Military publications											
4.2.2. Technical orders								a(I)			
4.2.3. National Electrical Code (NFPA 70)								2b(I)			

Attachment 2
3E0X1 Specialty Training Standard (STS)

1. Tasks, Knowledge and Technical References	2. Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided via DL and/or Course			
	A	B	A	B	C	D	E	A	B	C	D
	Core Cert ^	Deployment * SEI +	Tng Start	Tng Comp	Trainee Initials	Trainer Initials	Certifier Initials	3 Lvl	5 Lvl	7 Lvl	9 Lvl
4.2.4. National Electrical Safety Code (NFPA 70E)								b(I)			
4.2.5. National Fire Alarm and Signaling Code (NFPA 72)											
4.2.6. Interior Electrical Systems (3-520-01)								a(I)			
4.2.7. Electrical Safety, O&M (3-560-01)								a(I)		2b	
4.2.8. Commercial publications								a(I)			
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									B		
5.2. Attend AFIT WENG 200 Scoping and Estimating Course	7										
5.3. Attend AFIT WMGT 301 Intro to Asset Management	5										
5.4. Attend WMGT 437 Troop Construction Project Management Course											
5.5. Attend AFIT WMGT 322 Intro to Project Management Course	7										
5.6. Attend AFIT WMGT 422 Project Management Course											
5.7. Analyze electrical documents (wiring diagrams, schematics, specification sheets, drawings, staking sheets, and one line diagrams)								2b(I)		3c	
5.8. Work scheduling requirements											
5.8.1. Schedule job under 600 volts in NexGen								b(I)		3c	
5.8.2. Schedule job over 600 volts in NexGen								b(I)		3c	
5.9. Circuit Protection Fundamentals									B		

Attachment 2
3E0X1 Specialty Training Standard (STS)

1. Tasks, Knowledge and Technical References	2. Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided via DL and/or Course			
	A	B	A	B	C	D	E	A	B	C	D
	Core Cert ^	Deployment * SEI +	Tng Start	Tng Comp	Trainee Initials	Trainer Initials	Certifier Initials	3 Lvl	5 Lvl	7 Lvl	9 Lvl
5.10. Determine proper protective devices											
5.10.1. Under 600 volts										2b	
5.10.2. Over 600 volts										2b	
6.0. ELECTRICAL FUNDAMENTALS TR: T.O. 31-1-141 Series; NFPA 70: Note: QTP required for UGT											
6.1. Terms and symbols								A(I)	B		
6.2. DC circuits								A(I)	B		
6.3. AC circuits								B(I)	B		
6.4. Electrical Circuit Applications									B		
6.5. Construct basic electric circuits								2b(I)			
6.6. Calculate electrical values	5^							2b(I)			
6.7. Measure electrical properties in circuits and components								2b(I)			
6.8. Transformer theory								B(I)	B		
6.9. Load balancing									B		
6.10. Primary electrical systems								B(I)			
7.0. ELECTRONIC FUNDEMENTALS TR: 31-1-141 series											
7.1. Circuits								A(I)	B		
7.2. Terms and symbols								A(I)	B		
7.3. Harmonics									B		
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									B		
8.2. Recloser								A(I)			
8.3. Circuit breakers								A(I)			
8.4. Potential transformers								A(I)			
8.5. Current transformers								A(I)			

Attachment 2
3E0X1 Specialty Training Standard (STS)

1. Tasks, Knowledge and Technical References	2. Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided via DL and/or Course			
	A	B	A	B	C	D	E	A	B	C	D
	Core Cert ^	Deployment * SEI +	Tng Start	Tng Comp	Trainee Initials	Trainer Initials	Certifier Initials	3 Lvl	5 Lvl	7 Lvl	9 Lvl
8.6. Protective relays								A(I)			
8.7. Voltage regulator								A(I)			
8.8. Insulating medium											
8.8.1. Air								A(I)			
8.8.2. Oil								A(I)			
8.8.3. Vacuum								A(I)			
8.8.4. Gas								A(I)			
8.9. Capacitor banks								A(I)			
8.10. Battery banks								A(I)			
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; Note: QTP required for UGT											
9.1. Fundamentals									B		
9.2. Climb wooden poles using gaffs								2b(I)			
9.3. Work on pole components off gaffs								2b(I)			
9.4. Traverse obstacles off gaffs								2b(I)			
9.5. Handle poles											
9.5.1. Load/Unload								2b(I)			
9.5.2. Transport								a(I)			
9.5.3. Frame								2b(I)			
9.5.4. Set utility poles								2b(I)			
9.6. Install											
9.6.1. Guys								1a(I)			
9.6.2. Overhead line conductors	5^							2b(I)			
9.6.3. Anchors								b(I)			
9.7. Install pole equipment											
9.7.1. Conductor support devices	5^							2b(I)			
9.7.2. Transformers	5^							2b(I)			

Attachment 2
3E0X1 Specialty Training Standard (STS)

1. Tasks, Knowledge and Technical References	2. Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided via DL and/or Course			
	A	B	A	B	C	D	E	A	B	C	D
	Core Cert ^	Deployment * SEI +	Tng Start	Tng Comp	Trainee Initials	Trainer Initials	Certifier Initials	3 Lvl	5 Lvl	7 Lvl	9 Lvl
9.7.3. Protective devices	5^							2b(I)			
9.7.4. High voltage switches								a(I)			
9.7.5. Armor rod								a(I)			
9.7.6. Grounding sets **(TQT)**	5^							2b(I)		3c	
9.8. Install Services											
9.8.1. Drop								1a(I)			
9.8.2. Laterals								b(I)			
9.9. Maintenance											
9.9.1. Fundamentals									B		
9.9.2. Inspect poles	5^							2b(I)			
9.9.3. Maintain overhead distribution equipment								a(I)			
9.9.4. Isolate system faults								b(I)			
9.9.5. Splice de-energized overhead conductor								1a(I)			
9.9.6. Replace de-energized conductors support								1a(I)			
9.9.7. Transfer de-energized conductors to new pole								b(I)			
9.9.8. Perform transformer connections	5^							2b(I)			
9.9.9. Troubleshoot pole mount transformer								1a(I)			
9.9.10. Perform preventive maintenance on systems over 600 volts											
10.0. UNDERGROUND DISTRIBUTION SYSTEMS TR: AFM 91-203; Lineman's and Cableman's Handbook; NFPA 70, NFPA 70E; NESC; UFC 3-560-01; Note: QTP required for UGT											
10.1. Fundamentals									B		
10.2. Install											
10.2.1 Direct burial cable								b(I)			
10.2.2. Duct systems								a(I)			
10.2.3. Cable in duct								1a(I)			
10.2.4. Pad mount Switches								a(I)			
10.2.5. Sectionalizers								a(I)			

Attachment 2
3E0X1 Specialty Training Standard (STS)

1. Tasks, Knowledge and Technical References	2. Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided via DL and/or Course			
	A	B	A	B	C	D	E	A	B	C	D
	Core Cert ^	Deployment * SEI +	Tng Start	Tng Comp	Trainee Initials	Trainer Initials	Certifier Initials	3 Lvl	5 Lvl	7 Lvl	9 Lvl
10.3. Install transformers											
10.3.1. Pad mounted	5^										
10.3.2. In-vault											
10.4. Install grounding sets **(TQT)**	5^							2b(I)		3c	
10.5. Splice high voltage underground cable											
10.5.1. Using tape								a(I)			
10.5.2. Using pre-form kits								a(I)			
10.5.3. Terminate high voltage underground cable **(TQT)**	5^							b(I)			
10.6. Maintenance											
10.6.1. Inspect termination								b(I)			
10.6.2. Inspect underground splices								b(I)			
10.6.3. High potential DC tester											
10.6.4. VLF AC Tester								a(I)			
10.6.5. Sectionalizers								a(I)			
10.6.6. Pad Mount Switches								a(I)			
10.6.7. Perform preventive maintenance on underground Systems over/under 600 volts											
10.7. Troubleshoot											
10.7.1. Underground cables								2b(I)			
10.7.2. Pad mount transformer								1a(I)			
10.8. Isolate system faults								2b(I)			
10.9. Fabricate 200 Amp load break elbow **(TQT)**	5^							2b(I)			
10.10. Fabricate 600 Amp Dead Break								a(I)		3c	
10.11. Install 600 Amp Dead Break								a(I)		3c	
10.12. Design distribution systems										3c	
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: Note: QTP required for UGT											
11.1. Fundamentals									B		

Attachment 2
3E0X1 Specialty Training Standard (STS)

1. Tasks, Knowledge and Technical References	2. Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided via DL and/or Course			
	A	B	A	B	C	D	E	A	B	C	D
	Core Cert ^	Deployment * SEI +	Tng Start	Tng Comp	Trainee Initials	Trainer Initials	Certifier Initials	3 Lvl	5 Lvl	7 Lvl	9 Lvl
11.2. Install											
11.2.1. Service entrance								1a(I)			
11.2.2. Meter base								1a(I)			
11.2.3. Disconnect								2b(I)			
11.2.4. Feeders	5^							2b(I)			
11.2.5. Distribution panels	5^							2b(I)			
11.2.6. Branch circuits	5^							2b(I)			
11.2.7. Lighting controls								2b(I)			
11.2.8. Receptacles								2b(I)			
11.3. Install fault protection											
11.3.1. Receptacle (GFCI)								2b(I)			
11.3.2. Breaker (GFCI)								2b(I)			
11.3.3. Arc fault circuit interrupter (AFCI)								b(I)			
11.3.4. Overcurrent protection devices	5^							2b(I)			
11.4. Grounding											
11.4.1. Perform system connections	5^							2b(I)			
11.4.2. Perform equipment connections	5^							2b(I)			
11.4.3. Perform bonding connections	5^							2b(I)			
11.5. Wire using:											
11.5.1. Nonmetallic sheathed cable								b(I)			
11.5.2. Surface raceway											
11.6. Install conduit											
11.6.1. Rigid metal								2b(I)			
11.6.2. Electrical metallic tubing								2b(I)			
11.6.3. Flexible metal								2b(I)			
11.6.4. In hazardous locations								b(I)			
11.7. Install dry-type transformers								a(I)			
11.8. Luminaires											
11.8.1. Install								2b(I)			
11.8.2. Maintain								b(I)			
11.8.3. Troubleshoot	5^							2b(I)			
11.9. Read service meters											

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1. Tasks, Knowledge and Technical References	2. Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided via DL and/or Course			
	A	B	A	B	C	D	E	A	B	C	D
	Core Cert ^	Deployment * SEI +	Tng Start	Tng Comp	Trainee Initials	Trainer Initials	Certifier Initials	3 Lvl	5 Lvl	7 Lvl	9 Lvl
11.10. Maintain transformers											
11.11. Perform preventive maintenance											
11.12. Hazardous locations											
11.12.1. Maintain electrical system								b(I)			
11.12.2. Troubleshoot electrical system								b(I)			
11.13. Appliances											
11.13.1. Fundamentals								A(I)	B		
11.13.2. Install								a(I)			
11.13.3. Maintain											
11.13.4. Troubleshoot											
11.14. Principles of power conditioners											
11.15. Cathodic Protection											
11.15.1. Fundamentals									B		
11.15.2. Maintain											
11.15.3. Troubleshoot											
12.0. AIRFIELD LIGHTING SYSTEMS TR: AFM 32-1040; UFC 3-535-01; TO 35F5-3-12-1, TO 35F5-4-2-1: Note: QTP required for UGT											
12.1. Fundamentals								B	B		
12.2. Inspect											
12.2.1. Airfield beacon								a			
12.2.2. Obstruction lights								a			
12.3. Maintain											
12.3.1. Constant current regulator	5^							2b			
12.3.2. Control components	5^							b			
12.3.3. Counterpoise components								a			
12.3.4. Fixtures								2b			
12.3.5. Airport beacon								a			
12.3.6. Obstruction lights								a			
12.3.7. Condenser discharge light unit								b			
12.3.8. Condenser discharge lighting systems								a			

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1. Tasks, Knowledge and Technical References	2. Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided via DL and/or Course			
	A	B	A	B	C	D	E	A	B	C	D
	Core Cert ^	Deployment * SEI +	Tng Start	Tng Comp	Trainee Initials	Trainer Initials	Certifier Initials	3 Lvl	5 Lvl	7 Lvl	9 Lvl
12.3.9. Approach path indicators	5^							2b			
12.3.10. Windsock								a			
12.3.11. Hold Line lighting (Wig Wag)								a			
12.4. Replace											
12.4.1. Control components								2b			
12.4.2. Condenser discharge components											
12.4.3. Rotating beacon components								a			
12.4.4. Airfield fixture and lamps								2b			
12.4.5. Isolating (IL) transformers	5^							2b			
12.5. Troubleshoot											
12.5.1. Lighting circuits	5^							2b			
12.5.2. Control circuits								1a			
12.5.3. Condenser discharge lighting system								1a			
12.6. Isolate circuits and equipment	5^							2b			
12.7. Test lighting cable								2b			
12.8. Repair											
12.8.1. Lighting cable (connector splice kit)								b			
12.8.2. Lighting cable (resin splice kit)								b			
12.9. Connect constant current regulator for emergency operation	5^							b			
13.0. LIGHTING SYSTEMS (STREET, TRAFFIC, FACILITY, SECURITY, RECREATIONAL) TR: Lineman's and Cableman's Handbook; NFPA 70											
13.1. Fundamentals									B		
13.2. Install											
13.2.1. High intensity discharge (HID) light fixtures								1a(I)			
13.2.2. LED fixtures								1a(I)			
13.2.3. Lighting control components								1a(I)			

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1. Tasks, Knowledge and Technical References	2. Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided via DL and/or Course			
	A	B	A	B	C	D	E	A	B	C	D
	Core Cert ^	Deployment * SEI +	Tng Start	Tng Comp	Trainee Initials	Trainer Initials	Certifier Initials	3 Lvl	5 Lvl	7 Lvl	9 Lvl
13.3. Adjust											
13.3.1. Controls								1a(I)			
13.3.2. Fixtures											
13.3.3. Relamp lighting systems								1a(I)			
13.3.4. Troubleshoot lighting systems								1a(I)			
14.0. MOTORS AND MOTOR CONTROL CIRCUITS TR: AFM 32-1065; NFPA 70; Note: QTP required for UGT											
14.1. Fundamentals									B		
14.2. Install											
14.2.1. Motors								1a(I)			
14.2.2. Motor controls	5^							2b(I)			
14.3. Maintain											
14.3.1. Motors								b(I)			
14.3.2. Motor controls								b(I)			
14.4. Troubleshoot											
14.4.1. Motors								1a(I)			
14.5. Troubleshoot motor controls											
14.5.1. Across-the-line starters								1a(I)			
14.5.2. Solid state								a(I)			
14.5.3. Reversing starters								a(I)			
14.5.4. Frequency drive											
14.5.5. Capacitor starter											
14.6. Reduced voltage starters											
14.6.1. STAR DELTA											
14.6.2. Auto transformer											
14.6.3. Resistor											
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									B		

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1. Tasks, Knowledge and Technical References	2. Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided via DL and/or Course			
	A	B	A	B	C	D	E	A	B	C	D
	Core Cert ^	Deployment * SEI +	Tng Start	Tng Comp	Trainee Initials	Trainer Initials	Certifier Initials	3 Lvl	5 Lvl	7 Lvl	9 Lvl
15.2. Primary distribution system								B(I)			
15.3. Facility subsystem								B(I)			
15.4. Lightning protection systems								B(I)		C	
15.5. Static								B(I)			
15.6. Isolated Grounds								A(I)			
15.7. Bonding								B(I)			
15.8. Fuels facilities										B	
15.9. Weapons Storage Area										B	
15.10. Communications facilities										B	
15.11. Install											
15.11.1. Primary distribution system								b(I)			
15.11.2. Facility subsystem								b(I)			
15.11.3. Lightning protection system								b(I)			
15.11.4. Isolated Grounds											
15.11.5. Bonding								b(I)			
15.11.6. Static								b(I)			
15.12. Maintain											
15.12.1. Lightning protection system								b(I)			
15.12.2. Primary distribution system								b(I)			
15.12.3. Facility subsystem								b(I)			
15.13. Test											
15.13.1. Lightning protection systems								b(I)			
15.13.2. Primary distribution system								b(I)			
15.13.3. Facility subsystem								1a(I)			
15.13.4. Isolated Grounds											
15.13.5. Static											
15.13.6. Fuels facilities											
15.13.7. Weapons Storage Area											
15.13.8. Communications facilities											
15.14. Troubleshoot											

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3E0X1 Specialty Training Standard (STS)

1. Tasks, Knowledge and Technical References	2. Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided via DL and/or Course			
	A	B	A	B	C	D	E	A	B	C	D
	Core Cert ^	Deployment * SEI +	Tng Start	Tng Comp	Trainee Initials	Trainer Initials	Certifier Initials	3 Lvl	5 Lvl	7 Lvl	9 Lvl
15.14.1. Primary distribution system											
15.14.2. Facility subsystem											
15.14.3. Isolated Grounds											
15.14.4. Lightning protection system											
15.15. Corrective actions											
15.16. Management of Grounding Program										B	
16.0. SIGNALING SYSTEMS TR: NFPA 70, NFPA 72, NFPA 101; AFI 32-2001, AFM 91-203; UFC 3-600-1, UFC 3-601-02; Fire Alarm Manufacturers Specifications: Note: QTP required for UGT											
16.1. Fundamentals								A	B		
16.2. Fire Alarm Systems											
16.2.1. Code **c**entral receiving operations ♦	5^							A	B		
16.2.2. Maintain											
16.2.2.1. Fire Alarm Panel	5^							a			
16.2.2.2. Addressable Panel	5^										
16.2.2.3. Mass Notification System (MNS)											
16.2.2.4. Annunciators											
16.2.2.5. Transceiver/Repeaters											
16.2.2.6. Initiating Devices	5^							a			
16.2.2.7. Shielded Plenum Cable											
16.2.2.8. Notification Appliance Circuits (NAC)	5^							a			
16.2.2.9. Booster Power Supply (BPS)	5^							a			
16.2.2.10. Antenna**s**											
16.2.2.11. Narrowband Frequency											
16.2.3. Repair											
16.2.3.1. Fire Alarm Panel	5^							a			
16.2.3.2. Addressable Panel	5^										
16.2.3.3. Mass Notification System (MNS)											

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1. Tasks, Knowledge and Technical References	2. Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided via DL and/or Course			
	A	B	A	B	C	D	E	A	B	C	D
	Core Cert ^	Deployment * SEI +	Tng Start	Tng Comp	Trainee Initials	Trainer Initials	Certifier Initials	3 Lvl	5 Lvl	7 Lvl	9 Lvl
16.2.3.4. Annunciators											
16.2.3.5. Transceiver/Repeaters											
16.2.3.6. Initiating Devices	5^							a			
16.2.3.7. Shielded Plenum Cable											
16.2.3.8. Notification Appliance Circuits (NAC)	5^							a			
16.2.3.9. Booster Power Supply (BPS)	5^							a			
16.2.3.10. Antennas											
16.2.3.11. Narrowband Frequency											
16.2.4. Test											
16.2.4.1. Fire Alarm Panel											
16.2.4.2. Addressable Panel											
16.2.4.3. Mass Notification System (MNS)											
16.2.4.4. Annunciators											
16.2.4.5. Transceiver/Repeaters											
16.2.4.6. Initiating Devices											
16.2.4.7. Shielded Plenum Cable											
16.2.4.8. Notification Appliance Circuits (NAC)											
16.2.4.9. Booster Power Supply (BPS)											
16.2.4.10. Antennas											
16.2.4.11. Narrowband Frequency											
16.3. Cyber Security											
16.3.1. Fundamentals									B		
16.3.2. Policy											
16.3.3. Control Systems											
16.3.4. Design & Acquisition											
16.3.5. System Access											
16.3.6. Security Management											
16.4. Emergency Lighting Systems											
16.4.1. Fundamentals									B		
16.4.2. Install											
16.4.3. Maintain											

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1. Tasks, Knowledge and Technical References	2. Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided via DL and/or Course			
	A	B	A	B	C	D	E	A	B	C	D
	Core Cert ^	Deployment * SEI +	Tng Start	Tng Comp	Trainee Initials	Trainer Initials	Certifier Initials	3 Lvl	5 Lvl	7 Lvl	9 Lvl
16.4.4. Troubleshoot											
16.5. Traffic control systems											
16.5.1. Fundamentals									B		
16.5.2 Maintain											
16.5.3. Troubleshoot											
17. TOOLS AND EQUIPMENT TR: AFI 24-301; AFM 32-1065; NFPA 70E; TOs 32-1-2; Note: QTP required for UGT											
17.1. Fundamentals									B		
17.2. Maintain											
17.2.1. Pole trailer											
17.2.2. Reel jacks											
17.2.3. Cable pulling guide											
17.2.4. Handline								a(I)			
17.2.5. Block and tackle								a(I)			
17.2.6. Chain hoist								a(I)			
17.2.7. Climbing equipment								2b(I)			
17.3. Use electricians' hand tools								2b(I)			
17.4. Use portable power tools								2b(I)			
17.5. Test equipment											
17.5.1. Fundamentals									B		
17.6. Use Multimeter	5^							3c(I)			
17.7. Use Clamp-on ammeter	5^							3c(I)			
17.8. Use Phase rotation meter **(TQT)**	5^							2b(I)			
17.9. Use Megohmmeter **(TQT)**	5^							3c(I)			
17.10. Use Circuit breaker tester											
17.11. Use Tachometer											
17.12. Use Frequency meter											
17.13. Use Cathodic protection set											
17.14. Use Recording meter											
17.15. Use Circuit tracer								2b(I)			
17.16. Use Infrared scanner **(TQT)**										A	
17.17. Use Gas detector								2b(I)			
17.18. Use Hot stick tester								a(I)			

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1. Tasks, Knowledge and Technical References	2. Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided via DL and/or Course			
	A	B	A	B	C	D	E	A	B	C	D
	Core Cert ^	Deployment * SEI +	Tng Start	Tng Comp	Trainee Initials	Trainer Initials	Certifier Initials	3 Lvl	5 Lvl	7 Lvl	9 Lvl
17.19. Use High voltage phase tester **(TQT)**	5^							2b(I)			
17.20. Use Relay tester											
17.21. Use Earth resistance tester								1a(I)			
17.22. Use Cable fault locator, low voltage								1a(I)			
17.23. Use Cable locator								1a(I)			
17.24. Use High potential DC tester								1a(I)			
17.25. Use High voltage audible indicator											
17.26. Use Wattmeter											
17.27. Use VLF Hypot Tester											
17.28. Utility vehicles											
17.28.1. Fundamentals									B		
17.29 Maintain											
17.29.1. Aerial lift truck with insulated bucket	5^							2b(I)			
17.29.2. Line maintenance truck	5^							2b(I)			
17.30. Operate											
17.30.1. Aerial lift truck controls	5^							2b(I)			
17.30.2. Line maintenance truck controls	5^							2b(I)			
17.30.3. Aerial lift equipment											
17.30.4. Use hand signals to direct line maintenance truck operator	5^							2b(I)			
17.31. Dielectrically Test											
17.31.1. Aerial lift truck								a(I)			
17.31.2. Line maintenance truck											
17.32. Conduit benders											
17.32.1. Fundamentals									B		
17.33. Use manual								2b(I)			
17.34. Use hydraulic								2b(I)			
17.35. Use electric								2b(I)			
17.36. Conduit threaders											
17.36.1. Fundamentals									B		

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	A	B	A	B	C	D	E	A	B	C	D
	Core Cert ^	Deployment * SEI +	Tng Start	Tng Comp	Trainee Initials	Trainer Initials	Certifier Initials	3 Lvl	5 Lvl	7 Lvl	9 Lvl
17.37. Use manual								2b(I)			
17.38. Use power								2b(I)			
17.39. Use soldering equipment											
17.40. Knockout											
17.40.1. Fundamentals									B		
17.40.2. Use hydraulic								1a(I)			
18.0. FOREIGN ELECTRICAL SYSTEMS											
18.1. Fundamentals of foreign voltages									B		
18.2. Electrical systems terms									A		
18.3. Electrical distribution systems											
18.3.1. Fundamentals									B		
18.4. Voltages											
18.5. Wiring color code											
18.6. Wire sizes											
18.7. Installation											
18.8. Wire or cable types											
18.9. Distribution panels											
18.10. Protective devices											
19.0. AFSC SPECIFIC CONTENGENCY RESPONSIBILITIES TR: AFI 10-209, AFI 10-210; WMP CE Supplement; AFPAM 10-219 Vol 2, 3, 4 & 5											
19.1. Airfield support systems											
19.1.1. Mobile Aircraft Arresting Systems (MAAS) TR: TOs 35E8-2-10 Series											
19.1.1.1. Fundamentals		*							A		
19.1.1.2. Install		*									
19.1.1.3. Maintain		*									
19.1.2. Emergency Air Field Lighting System (EALS) TR: 35F5-3-17-1 Note: QTP required for UGT											
19.1.2.1. Fundamentals		*							B		
19.1.2.2. Install											

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	A	B	A	B	C	D	E	A	B	C	D
	Core Cert ^	Deployment * SEI +	Tng Start	Tng Comp	Trainee Initials	Trainer Initials	Certifier Initials	3 Lvl	5 Lvl	7 Lvl	9 Lvl
19.1.2.2.1. Approach ♦	5^	*						2b			
19.1.2.2.2. Strobes ♦	5^	*						2b			
19.1.2.2.3. Runway ♦	5^	*						2b			
19.1.2.2.4. PAPI ♦	5^	*						2b			
19.1.2.2.5. Taxiway ♦	5^	*						2b			
19.1.2.2.6. Distance to go (DTG) ♦	5^	*						2b			
19.1.2.2.7. Regulator ♦	5^	*						2b			
19.1.2.2.8. Generator ♦	5^	*						2b			
19.1.2.2.9. Obstruction lights ♦	5^	*						2b			
19.1.3. Operate											
19.1.3.1. Regulator ♦	5^	*						1a			
19.1.3.2. Generator ♦	5^	*						1a			
19.1.3.3. Obstruction lights		*									
19.1.4. Maintain											
19.1.4.1. Approach/strobes		*									
19.1.4.2. Runway		*									
19.1.4.3. PAPI		*									
19.1.4.4. Taxiway		*									
19.1.4.5. Distance to go ((DTG)		*									
19.1.4.6. Regulator		*									
19.1.4.7. Generator		*									
19.1.4.8. Obstruction lights		*									
19.1.5. Troubleshoot											
19.1.5.1. Approach/Strobe		*									
19.1.5.2. PAPI		*									
19.1.5.3. Regulator		*									
19.1.5.4. Generator		*									
19.2. Expedient bed down methods											
19.2.1. Basic Expeditionary Airfield Resources (BEAR) assets											
19.2.1.1. Shelter lighting TR: TO 35E5-6-11											
19.2.1.1.1. Fundamentals		*							B		
19.2.1.1.2. Install		*									
19.2.1.1.3. Remove		*									

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	A	B	A	B	C	D	E	A	B	C	D
	Core Cert ^	Deployment * SEI +	Tng Start	Tng Comp	Trainee Initials	Trainer Initials	Certifier Initials	3 Lvl	5 Lvl	7 Lvl	9 Lvl
19.2.1.2. Small Shelter System (SSS) TR: T.O. 35E5-6-11											
19.2.1.2.1. Assemble								1a/a	b		
19.2.1.2.2. Disassemble								1a/a	b		
19.2.2. Remote Area Lighting Systems (RALS) TR: Ref: TO 35F5-5-22-1											
19.2.2.1. Fundamentals		*							B		
19.2.2.2. Install		*									
19.2.2.3. Operate		*									
19.2.2.4. Maintain		*									
19.2.3. Telescopic Floodlight Set TR: TO 35F5-5-21-1											
19.2.3.1. Fundamentals		*							B		
19.2.3.2. Install		*									
19.2.3.3. Operate		*									
19.2.3.4. Maintain		*									
19.2.4. BEAR Kitchen Equipment TR: TO 35E4-169-1, TO 35E4-235-1											
19.2.4.1. Fundamentals		*							B		
19.2.4.2. Install power supply		*									
19.2.4.3. Maintain electrical systems		*									
19.2.5. Reverse Osmosis Water Purification Unit (ROWPU) electrical system TR: TOs 40W4-20-1											
19.2.5.1. Fundamentals		*							B		
19.2.5.2. Install		*									
19.2.5.3. Troubleshoot		*									
19.2.6. Electrical distribution system Note: QTP required for UGT											
19.2.6.1. Primary distribution system											
19.2.6.1.1. Fundamentals		*							B		
19.2.6.1.2. Install											

Attachment 2
3E0X1 Specialty Training Standard (STS)

1. Tasks, Knowledge and Technical References	2. Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided via DL and/or Course			
	A	B	A	B	C	D	E	A	B	C	D
	Core Cert ^	Deployment * SEI +	Tng Start	Tng Comp	Trainee Initials	Trainer Initials	Certifier Initials	3 Lvl	5 Lvl	7 Lvl	9 Lvl
19.2.6.1.2.1. Power source		*						a			
19.2.6.1.2.2. Secondary Distribution Center High Voltage (SDC-HV) section ♦	5^	*						2b			
19.2.6.1.2.3. High voltage cable ♦	5^	*						2b			
19.2.6.1.2.4. Cable Reel Pallet Assembly		*									
19.2.6.1.2.5. Primary Switching Center (PSC) ♦	5^	*						2b			
19.2.6.1.3. Operate											
19.2.6.1.3.1. Power source		*						a			
19.2.6.1.3.2. SDC-HV section ♦	5^	*						2b			
19.2.6.1.3.3. PSC ♦	5^	*						2b			
19.2.6.1.4. Maintain											
19.2.6.1.4.1. PSC ♦	5^	*									
19.2.6.1.5. Troubleshoot											
19.2.6.1.5.1. SDC-HV section ♦	5^	*									
19.2.6.1.5.2. PSC ♦	5^	*									
19.2.6.1.6. Isolate, block and tag equipment		*								3c	
19.2.6.2. Secondary distribution system TR: TO 35CA2-2-10-1, TO 35CA6-1-101											
19.2.6.2.1. Fundamentals		*							B		
19.2.6.2.2. Install											
19.2.6.2.2.1. Power source		*						a			
19.2.6.2.2.2. Secondary Distribution Center Low Voltage (SDC-LV) section ♦	5^	*						2b			
19.2.6.2.2.3. Power Distribution Panel (PDP) ♦	5^	*						2b			
19.2.6.2.2.4. Low Voltage (LV) Cables ♦	5^	*						2b			
19.2.6.2.3. Operate											
19.2.6.2.3.1. Power source		*						a			
19.2.6.2.3.2. SDC-LV section ♦	5^	*						2b			
19.2.2.6.2.3.3. PDP ♦	5^	*						2b			
19.2.6.2.4. Maintain											

Attachment 2
3E0X1 Specialty Training Standard (STS)

1. Tasks, Knowledge and Technical References	2. Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided via DL and/or Course			
	A	B	A	B	C	D	E	A	B	C	D
	Core Cert ^	Deployment * SEI +	Tng Start	Tng Comp	Trainee Initials	Trainer Initials	Certifier Initials	3 Lvl	5 Lvl	7 Lvl	9 Lvl
19.2.6.2.4.1. SDC-LV section ♦	5^	*									
19.2.6.2.4.2. PDP ♦	5^	*									
19.2.6.2.5. Troubleshoot											
19.2.6.2.5.1. SDC-LV section ♦	5^	*									
19.2.6.2.5.2. PDP ♦	5^	*									
19.2.6.2.5.3. LV cables ♦	5^	*									
19.2.6.3. Grounding methods ♦	5^	*						A	B		
19.2.6.4. Plan distribution **(TQT)**		*								3c	
19.3. Electrical support TR: AFPAM 10-219, Vol 5											
19.3.1. Facility repair TR: AFPAM 10-219, Vol 3											
19.3.1.1. Fundamentals		*							B		
19.3.1.2. Electrical systems expedient repair		*									
19.3.1.3. Expedient generator installation		*									
19.4. Medical facilities		*									
19.5. Joint Service Contingency Equipment		*									
19.6. Rapid Airfield Damage Recovery (RADR)											
19.6.1. RADR Philosophy		*							B		
19.6.2. Roller Procedures		*							B		
19.6.3. FOD removal		*							B		
20.0 Interim Emergency Air Field Lighting System (iEALS) TR: Manufacturers Manual Note: QTP required for UGT											
20.1. Install											
20.1.1. Approach		*									
20.1.2. Strobes		*									
20.1.3. Runway		*									
20.1.4. PAPI		*									
20.1.5. Taxiway		*									
20.1.6. Distance to go (DTG)		*									
20.1.7. Regulator		*									
20.1.8. Generator		*									

Attachment 2
3E0X1 Specialty Training Standard (STS)

1. Tasks, Knowledge and Technical References	2. Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided via DL and/or Course			
	A	B	A	B	C	D	E	A	B	C	D
	Core Cert ^	Deployment * SEI +	Tng Start	Tng Comp	Trainee Initials	Trainer Initials	Certifier Initials	3 Lvl	5 Lvl	7 Lvl	9 Lvl
20.1.9. Obstruction lights		*									
20.2. Operate											
20.2.1. Regulator		*									
20.2.2. Generator		*									
20.2.3. Obstruction lights		*									
20.3. Maintain											
20.3.1. Approach/strobes		*									
20.3.2. Runway		*									
20.3.3. PAPI		*									
20.3.4. Taxiway		*									
20.3.5. Distance to go (DTG)		*									
20.3.6. Regulator		*									
20.3.7. Generator		*									
20.3.8. Obstruction lights		*									
20.4. Troubleshoot											
20.4.1. Approach/Strobe											
20.4.2. PAPI											
20.4.3. Regulator											
20.4.4. Generator											

Attachment 3
3E0X1 Air Force Qualification Training Package Documentation Record

A3. AFQTP Documentation Record.

A3.1. To ensure each Electrical Systems Specialist is trained to the correct standard an AF Qualification Training Package (AFQTP) has been developed for each core task identified in their STS. These AFQTPs are **mandated** to be used by the trainee, trainer, and certifier in their on-the-job-training program for upgrade to the 5- or 7-level.

A3.2. These AFQTPs ensures all aspects of the task is 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 specialty topic area.

A3.3. **Documentation.** Before a core or diamond 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.

A3.3.1. **Core Tasks.** To document the completion the supervisor or trainer opens the individual automated training record, navigates to the QTP section, enter the start and completed date with signatures.

A3.3.2. **Diamond (♦) Tasks.** Supervisors/Trainers DO NOT sign off the corresponding JQS task until the trainee has completed hands-on training. If the required equipment is not available at your location, completion of the task's AFQTP web-based course or assessment with a passing score of 80% is all that required for upgrade training. Hands-on certification shall be accomplished at the first opportunity when equipment is available and then can be signed off on the JQS.

Attachment 3
3E0X1 Air Force Qualification Training Package Documentation Record

A3.4. 3E0X1 AFQTP's for Core and Diamond Tasks Requirements.

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	5					
1.2.	Complete CE 7-Level Core Concepts Course	7					
1.4.	Complete WENG 170 Cybersecurity for Control Systems	5					
1.5.	Complete WENG 370 Control Systems Cybersecurity for CE Leaders	7					
2.0.	**Sustainment Management Systems (SMS)**						
2.4.	Complete AFIT WMGT 131 SMS Builder Course	5					
2.5.	Complete AFIT WMGT 436 Requirements and Optimization	7					
3.0.	**AFS SPECIFIC SAFETY STANDARD**						
3.1.1.	**Electrical facilities safe clearance forms**						
3.1.1.1.	Complete AF Form 979	5					
3.1.1.2.	Complete AF Form 980	5					
3.1.1.3.	Complete AF Form 983	5					
3.1.1.5.	**Utilize AF Form 269:**						
3.1.1.5.1.	When switching	7					
3.1.1.5.2.	When blocking and tagging	7					
3.3.	Plan safe clearance	7					
3.8.	**Confined space**						
3.8.2.	**Safe entry procedures**						
3.8.3.	Complete Confined Space WBT	5					
3.12.	**Conduct safety inspections and maintain:**						
3.12.2.	Test hot line tools	5					
3.12.3.	Test rubber personal protective equipment	5					
5.0.	**PROJECT PLANNING and WORK SCHEDULING**						
5.2.	Attend AFIT WENG 200 Scoping and Estimating Course	7					
5.3.	Attend AFIT WMGT 301 Intro to Asset Management	5					
5.5.	Attend AFIT WMGT 322 Intro to Project Management Course	7					
6.0.	**ELECTRICAL FUNDAMENTALS**						
6.6.	Calculate electrical values	5					
9.0.	**OVERHEAD DISTRIBUTION SYSTEMS**						
9.6	**Install**						
9.6.2.	Overhead line conductors	5					
9.7.	**Install pole equipment**						
9.7.1.	Conductor support devices	5					
9.7.2.	Transformers	5					
9.7.3.	Protective devices	5					
9.7.6.	Grounding sets	5					
9.9.	**Maintenance**						
9.9.2.	Inspect Poles	5					

Attachment 3
3E0X1 Air Force Qualification Training Package Documentation Record

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	5					
10.0.	**UNDERGROUND DISTRIBUTION SYSTEMS**						
10.3.	**Install Transformers**						
10.3.1.	Pad mounted	5					
10.4.	Install grounding sets	5					
10.5.	**Splice high voltage underground cable**						
10.5.3.	Terminate high voltage underground cable	5					
10.9.	Fabricate 200 Amp load break elbow	5					
11.0.	**DISTRIBUTION SYSTEMS, 600 VOLTS AND LESS**						
11.2.	**Install**						
11.2.4.	Feeders	5					
11.2.5.	Distribution panels	5					
11.2.6.	Branch circuits	5					
11.3.	**Install fault protection**						
11.3.4.	Overcurrent protection devices	5					
11.4.	**Grounding**						
11.4.1.	Perform system connections	5					
11.4.2.	Perform equipment connections	5					
11.4.3.	Perform bonding connections	5					
11.8.	**Luminaires**						
11.8.3.	Troubleshoot	5					
12.0	**AIRFIELD LIGHTING SYSTEMS**						
12.3.	**Maintain**						
12.3.1.	Constant current regulator	5					
12.3.2.	Control components	5					
12.3.9.	Approach path indicators	5					
12.4.	**Replace**						
12.4.5.	Isolating (IL) transformers	5					
12.5.	**Troubleshoot**						
12.5.1.	Lighting circuits	5					
12.6.	Isolating (IL) transformers	5					
12.9.	Connect constant current regulator for emergency operation	5					
14.0.	**MOTORS AND MOTOR CONTROL CIRCUITS**						
14.2.	**Install**						
14.2.2.	Motor controls	5					
16.0.	**SIGNALING SYSTEMS**						
16.2.	**Fire Alarm Systems**						
16.2.1.	Code central receiving operations ♦	5					
16.2.2.	**Maintain**						
16.2.2.1.	Fire Alarm Panel	5					
16.2.2.2	Addressable Panel	5					
16.2.2.6.	Initiating Devices	5					
16.2.2.8.	Notification Appliance Circuits (NAC)	5					
16.2.2.9.	Booster Power Supply (BPS)	5					
16.2.3.	**Repair**						
16.2.3.1.	Fire Alarm Panel	5					
16.2.3.2.	Addressable Panel	5					

Attachment 3
3E0X1 Air Force Qualification Training Package Documentation Record

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	5					
16.2.3.8.	Notification Appliance Circuits (NAC)	5					
16.2.3.9.	Booster Power Supply (BPS)	5					
17.0.	**TOOLS AND EQUIPMENT**						
17.5.	**Test equipment**						
17.6.	Use Multimeter	5					
17.7.	Use Clamp-on ammeter	5					
17.8.	Use Phase rotation meter	5					
17.8.	Use Megohmmeter	5					
17.19.	Use High voltage phase tester	5					
17.28.	**Utility vehicles**						
17.29.	**Maintain**						
17.29.1.	Aerial lift truck with insulated bucket	5					
17.29.2.	Line maintenance truck	5					
17.30.	**Operate**						
17.30.1.	Aerial lift truck with insulated bucket	5					
17.30.2.	Line maintenance truck	5					
17.30.4.	Use hand signals to direct line maintenance truck operator	5					
19.0.	**SPECIFIC CONTINGENCY RESPONSIBILITIES**						
19.1.	**Airfield support systems**						
19.1.2.	**Emergency Air Field Lighting System (EALS)**						
19.1.2.2.	**Install**						
19.1.2.2.1.	Approach ♦	5	*				
19.1.2.2.2.	Strobes ♦	5	*				
19.1.2.2.3.	Runway ♦	5	*				
19.1.2.2.4.	PAPI ♦	5	*				
19.1.2.2.5.	Taxiway ♦	5	*				
19.1.2.2.6.	Distance to go (DTG) ♦	5	*				
19.1.2.2.7.	Regulator ♦	5	*				
19.1.2.2.8.	Generator ♦	5	*				
19.1.2.2.9.	Obstruction lights ♦	5	*				
19.1.3.	**Operate**						
19.1.3.1.	Regulator ♦	5	*				
19.1.3.2.	Generator ♦	5	*				
19.2.	**Expedient bed down methods**						
19.2.2.6.	**Electrical distribution system**						
19.2.2.6.1.	**Primary distribution system**						
19.2.2.6.1.2.	**Install**						
19.2.2.6.1.2.2.	Secondary Distribution Center High Voltage (SDC-HV) section ♦	5	*				
19.2.2.6.1.2.3.	High voltage cable ♦	5	*				
19.2.2.6.1.2.5.	Primary Switching Center (PSC) ♦	5	*				
19.2.2.6.1.3.	**Operate**						
19.2.2.6.1.3.2.	SDC-HV section ♦	5	*				
19.2.2.6.1.3.3.	PSC ♦	5	*				
19.2.2.6.1.4.	**Maintain**						
19.2.2.6.1.4.1.	PSC ♦	5	*				

Attachment 3
3E0X1 Air Force Qualification Training Package Documentation Record

Task Number	Tasks, Knowledge and Technical References	Core /Deployment Tasks		Certification of AFQTPs			
		Core	Deployment	Tng Start	Tng Complete	Trainee Initials	Trainer Initials
19.2.2.6.1.5.	**Troubleshoot**						
19.2.2.6.1.5.1.	SDC-HV section ♦	5	*				
19.2.2.6.1.5.2.	PSC ♦	5	*				
19.2.2.6.2.	**Secondary distribution system**						
19.2.2.6.2.2.	**Install**						
19.2.2.6.2.2.2.	Secondary Distribution Center Low Voltage (SDC-LV) section ♦	5	*				
19.2.2.6.2.2.3.	Power Distribution Panel (PDP) ♦	5	*				
19.2.2.6.2.2.4.	Low Voltage (LV) Cables ♦	5	*				
19.2.2.6.2.3.	**Operate**						
19.2.2.6.2.3.2.	SDC-LV section ♦	5	*				
19.2.2.6.2.3.3.	PDP ♦	5	*				
19.2.2.6.2.4.	**Maintain**						
19.2.2.6.2.4.1.	SDC-LV section ♦	5	*				
19.2.2.6.2.4.2.	PDP ♦	5	*				
19.2.2.6.2.5.	**Troubleshoot**						
19.2.2.6.2.5.1.	SDC-LV section ♦	5	*				
19.2.2.6.2.5.2.	PDP ♦	5	*				
19.2.2.6.2.5.3.	LV cables ♦	5	*				
19.2.2.6.3.	Grounding methods ♦	5	*				