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**CFETP 3E0X2**  
**Part I and II**  
**10 February 2023**

## **Air Force Specialty Code (AFSC) 3E0X2**

# **ELECTRICAL POWER PRODUCTION**



**Master**



**Basic**



**Senior**

## **CAREER FIELD EDUCATION AND TRAINING PLAN**

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**CAREER FIELD EDUCATION AND TRAINING PLAN  
ELECTRICAL POWER PRODUCTION SPECIALTY  
AFSC 3E0X2**

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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 this specialty, Electrical Power Production. The CFETP will provide our personnel with a clear career path to success and instill rigor in all aspects of our career field 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 to use the CFETP.
- Section B identifies the career field progression information, the duties and responsibilities, the 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 Standard (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.

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

**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 used to identify each Air Force job; it describes the minimum mandatory qualifications for 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). Access the AF COOL Program through the [Air Force 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. Access the AFIT course list at [AFIT Civil Engineer School Course Catalog](#).

**Air Force Job Qualification Standard (AFJQS)/Command Job Qualification Standard (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, 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. Each Airman must use AFQTPs to satisfy a particular training requirement. AFQTPs for the 3E0X2 AFSC are located on [myLearning](#) and in [CE DASH](#).

**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 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, which 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 individual’s position

**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. Airmen must accomplish hands-on certification at the first opportunity when equipment is available.

**Distance Learning (DL).** Includes Video Tele-seminar (VTS), Video Tele-training (VTT), and WBT. 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 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.

**Enlisted Promotions Requirements Course Catalog (EPRRC).** The EPRRC lists all enlisted promotion tests authorized for administration and the study references associated with these tests. Every question on a promotion test comes from one of the publications listed in the catalog. The site only lists publications used to support questions on a given promotion test. The catalog also contains administrative and special instructions for test control officers. The EPRRC is available at [Airman Promotion Tools Testing.](#)

**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, AETC conducts this training 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, 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 regard 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, anywhere learning within the Civil Engineer Community consisting of instructional 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. Use the information collected from this survey to make changes to upgrade training and Weighted Airman Promotion System 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. Qualification training provides 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 delivery of training.

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

**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 course requirements for an AFS taught in resident or non-resident.

**Specialty Training Requirements Team (STRT).** Prior to a Utilization and Training Workshop (U&TW), the AFCCFM 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. Use the STRT 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.

**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.

**Total Force.** All collective Air Force components (Regular Air Force, Air Force Reserve, Air National Guard, and Civilian elements) of the United States Air Force.

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

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

**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 I

## SECTION A - GENERAL INFORMATION

**A1. Purpose:** This CFETP provides information necessary for the AFCFMs, MAJCOM functional managers (MFMs), commanders, education and 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, the 366 TRS at Sheppard AFB, TX provides the training.

**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. Qualification training provides 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 do not receive a new AFSC upon completion.

**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. Supervisors use it to 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.

**PART I**

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. Identify MAJCOM-developed training to support this AFS in the plan.

A2.3. Unit 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. Use the list of courses in Part II of this CFETP 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.

## PART I

**SECTION B - CAREER FIELD PROGRESSION AND INFORMATION**

**B1. Specialty Descriptions.** Electrical Power Production Apprentice, Journeyman, Craftsman, and Superintendent.

B1.1. Specialty Summary. Apprentice (3E032), Journeyman (3E052), and Craftsman (3E072). Installs, removes, operates, maintains, and repairs electrical power generating and control systems, aircraft arresting systems, and associated equipment. Related DOD Occupational Subgroup: 166200.

B1.1.1. Duties and Responsibilities for Apprentice (3E032), Journeyman (3E052), and Craftsman (3E072).

B1.1.2. Installs, removes, and operates electrical power generating and control systems, automatic transfer switches, aircraft arresting systems, and associated equipment. Checks equipment for serviceability. Positions equipment such as gasoline and diesel engines, generators, switchgears, air compressors, and other power generating auxiliary equipment. Installs, positions, rewinds, and pretensions aircraft arresting systems. Certifies aircraft arresting systems as required. Checks installed equipment to ensure compliance with publications, policies, and directives. Inspects, tests, and services component systems such as safety, fuel, lubrication, cooling, air pressure, pumps, regulators, governors, and accessory equipment. Observes and interprets instruments such as ammeters, voltmeters, frequency meters, synchroscopes, automatic temperature and pressure recorders, and engine oil, fuel, and coolant gauges. Adjusts engine generator systems to maintain proper voltage, current frequency, and synchronization. Synchronizes multi-generators. Operates high and low voltage switches, circuit breakers, rheostats, and other controls on switchgear and distribution panels. Performs electrical power control and distribution functions.

B1.1.3. Maintains, modifies, and repairs electrical power generating and control systems, automatic transfer switches, aircraft arresting systems, and associated equipment. Performs inspections and interprets findings to determine corrective action. Identifies and records engine and generator malfunctions. Uses precision test equipment, troubleshoots malfunctions, and inspects parts for excessive wear and other conditions. Removes, repairs, and replaces defective power generating equipment components. Performs corrosion control. Inspects and replaces gauges and meters. Maintains aircraft arresting systems, including electrical, hydraulic, rewind, and pneumatic systems, and other electronic components. Bench checks components and subassemblies. Tests and calibrates repaired items. Reviews performance data and maintenance records to determine adequacy of maintenance. Interprets data related to electrical power generating and aircraft arresting systems to ensure overall mission success.

B1.1.4. Reviews and advises on projects associated with electrical power generating and control systems, automatic transfer switches, aircraft arresting systems, and associated equipment. Reviews layout drawings and wiring diagrams. Ensures new construction meets proper operating characteristics of equipment. Establishes maintenance and operating procedures to ensure maximum efficiency.

**PART I**

B1.1.5. Maintains records. Posts entries on operation, inspection, and maintenance records. Records meter readings, wear and alignment measurements, fuel consumption, and other data in performance logs. Furnishes information for reports and recommends changes to correct defective equipment or improve operating procedures. Complies with environmental policies.

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

B1.2.1. Specialty Summary. 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.

## PART I

**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 3E032 – 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/DL course, Air Force Qualification Training Packages (AFQTP), and web-based courses for subject and task fundamentals progress 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 3E052 – 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 located on [myLearning](#) prior to beginning CDC/DL course.

B2.2.3. Completion of AFIT WENG 170, Cybersecurity for Control Systems, AFIT WMGT 301, Intro to Asset Management and WMGT 131 SMS Builder Level 1 courses are mandatory.

B2.2.4. Completion of the 5-level CDC/DL course and 100% of core and diamond tasks are the basic prerequisites for five skill level award.

B2.2.5. Must complete the appropriate Resident EPME as outlined in DAFI, 36-2670, *Total Force Development*.

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

B2.2.7. Use CDC/DL course and other reference material, in accordance with (IAW) the Enlisted Promotions Requirements Course catalog (EPRRC), to prepare for Weighted Airman Performance System (WAPS) testing.

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

B2.2.9. After all upgrade training requirements are completed, supervisors and UTMs coordinate upgrade procedures.

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**B2.3. Craftsman (AFSC 3E072 – 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% core/diamond tasks are basic prerequisites for seven skill level award.

B2.3.3. Must complete the appropriate Resident EPME as outlined in DAFI, 36-2670, *Total Force Development*.

B2.3.4. Should take additional training courses to broaden technical knowledge or management of resources and personnel.

B2.3.5. Use reference material to prepare for WAPS testing.

B2.3.6. Continue academic education through CCAF and higher degree programs is encouraged.

B2.3.7. Completion of AFIT WMGT 231 SMS Builder Level 2, WMGT 322 Intro to Project Management, WENG 370 Control Systems Cybersecurity for CE Leaders, and the Electrical Power Production Craftsman Course J6ANW3E072-00AA is mandatory.

B2.3.8. After all upgrade training requirements are completed, supervisors and UTMIs coordinate upgrade procedures.

B2.3.9. Completion of Troop Construction Project Management Course (AFIT WMGT 437) is mandatory for Regular Air Force 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 3E090 - 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 Regular Air Force 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.

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

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

## PART I

B2.4.5. Recommend continued academic development through higher education.

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

### **B2.5. Senior Enlisted Leader (SEL) (3E000 - CMSgt).**

B2.5.1. SELs work in multiple leadership positions and functional areas that challenge them and effectively use their general managerial and supervisory abilities.

B2.5.2. Must be selected for CMSgt and possess qualifications in a feeder specialty (3E090).

B2.5.3. Must complete the appropriate Basic EPME and Resident EPME as outlined in DAFI 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 Power Production 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 4 to 8 of Jun 2018.

**B3.1. Initials Skills Training.** The initial skill 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. Specialty Task Standards were reviewed, added, and validated. Additions and deletions of core tasks as well as modifications to proficiency codes were made. The CFM and FDM added the requirements to complete AFIT WENG 170 Cybersecurity for Control Systems, AFIT WMGT 301 Introduction to Asset Management and WMGT 131 SMS Builder Level 1 were added.

**B3.3. Seven Level Upgrade Training Requirements.** The STRT members reviewed, validated, and updated STS line items. They added a new required supplemental course, the Electrical Power Production Craftsman Course (J6ANW3E072-00AA). The CFM and FDM added the requirements to complete AFIT WMGT 322 Intro to Project Management, AFIT WENG 370 Control Systems Cybersecurity for CE Leaders, WMGT 231 SMS Builder Level 2, and AFIT WMGT 437-Troop Construction Project Management.

**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. The 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 Power Production career field receive the necessary training at the appropriate point in their careers. The training program will identify both mandatory and optional training requirements.

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**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, Community College of the Air Force 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 (60 Semester Hours).** The Mechanical & Electrical Technology Associates Degree (4VGA) applies to the 3E0X2 AFSC. Prior to completing a CCAF degree, the individual must be awarded a 5-level and the following requirements must be met:

<u>Course</u>	<u>Semester Hours</u>
Technical Education	24
Program Electives	15
Leadership, Management, and Military Studies (PME)	6
General Education (Civilian)	15
- Oral/Written Communication (6)	
- Mathematics (3)	
- Social Science (3)	
- Humanities (3)	
<b>Total</b>	<b>60</b>

**B5.1. Technical Education (24 semester hours)** Apply a minimum of nine (9) semester hours of CCAF institutional credit awarded from specialty-related formal training towards Technical Core subject requirements. Satisfy Technical Electives by CCAF credit or from other sources in-transfer.

<u>Technical Core</u>	<u>Maximum Semester Hours</u>
AC & Refrigeration Fundamentals	6
Airfield Lighting Systems	6

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Construction of Overhead Electrical Distro	3
Electrical & Electronic Control	3
Electrical Distribution Systems	3
Electrical Fundamentals	3
Electrical Power Generation/Distribution	3
Emergency Airfield Lighting System	3
Engine System & Associated Equipment	6
Environmental Control Systems	9
Fuel Subsystems	3
Generator Set Operation & Aircraft Arrest Barriers	3
Heating Systems Maintenance	3
Heating Systems Operations	6
HVAC & Refrigeration Contingency	6
HVAC/R & Civil Engineering Organization	3
Hydrant System Maintenance	3
Launch Facility Access/Security	3
Maintenance of Aircraft Arrest System	3
Maintenance Orientation	3
Mobile Generator Set Theory & Operations	6
Power Line Equipment & Pole Climbing	3
Power Production Equipment	3
Refrigeration & AC Systems	6
Special Purpose Electrical Systems	3
Special Tools and Equipment	6
Specialized Fuel System/Tank Entry	6
Utility Fundamentals	3
Water & Waste Distribution System	3

**B5.2. Technical Electives.**

<u>Technical Electives</u>	<u>Maximum Semester Hours</u>
Air Distribution and Filtering Systems	3
Alternate Heating and Cooling	3
Blueprint Reading/Schematic Diagrams	6
Building Codes and Ordinance	3
Control Systems/Maintenance	6
CCAF Upgrade Training	15
Electricity/Electronics	3
Engine Principles	3
Environmental Awareness	3
Environmental Compliance	3
Fire-Suppression Systems	6
General Chemistry	9
General Physics	4
Hazardous Materials	6
Industrial Safety	3

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Mechanics of Soils	3
Motor, Starter, and Control Devices	6
Natural Gas Distribution	6
Quality Assurance	3
Specialty-Related Subjects In-Transfer	9
Technical Mathematics	3
Welding/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. General Education:** Applicable courses must meet the General Education Requirement (GER) subject criteria and in-transfer requirements.

<u>General Education Subjects/Courses</u>	<u>Semester Hours</u>
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.	

**B5.5. Program Elective (15 semester hours).** Courses applying to technical education, LMMS or General Education requirements; natural science courses meeting General Education requirement application criteria; foreign language credit earned at Defense Language Institute; maximum 9 semester hours of CCAF degree-applicable technical course credit otherwise not applicable to program of registration.

B5.6. Additional off-duty education is 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. CCAF offers the Instructional Systems Development (ISD) Certification.** CCAF offers the Instructional Systems Development (ISD) Certification for qualified course/curriculum developers, writers and managers formally assigned to an off-campus instructional site to develop/write and manage CCAF collegiate-level credit awarding courses. The ISD Certification is a professional credential that recognizes the course/curriculum developer/writer's or managers

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extensive training, education, qualifications, and experience required to develop/write and manage CCAF courses.

**B5.8. Air Force Credentialing Opportunities On-Line (AF COOL) Program.** CCAF manages the AF COOL Program that provides a research tool designed to increase an enlisted Airman and Guardian's awareness of national professional credentialing and funding opportunities available for all Air Force enlisted occupational specialties. AF COOL also provides information on specific occupational specialties, civilian occupational equivalencies, specialty-related national professional credentials, credentialing agencies, and professional organizations. AF COOL includes information such as:

B5.8.1. Get background information about civilian credentials, including eligibility requirements and resources to prepare for an exam.

B5.8.2. Identify credentials relevant to an AFSC, Special Duty Identifier (SDI), and Reporting Identifier (RI).

B5.8.3. Learn how to fill gaps between Air Force training and experience and civilian credentialing requirements.

B5.8.4. Information on AF COOL funding opportunities to pay for credentialing coursework, textbooks, exams, associated fees, and recertification.

B5.8.5. Resources available to enlisted Airmen and Guardians that can help them gain civilian job credentials.

**B5.9. Air University Associate to Baccalaureate Cooperative (AU-ABC).** The Air University Associate-to- Baccalaureate Cooperative (AU-ABC) program connects CCAF graduates with online 4-year degree programs. The AU-ABC program includes postsecondary institutions with institutional accreditation.

B5.9.1.1. CAT I: For CCAF Graduates. Guarantees CCAF AAS graduates need no more than 64 semester hours to complete an AU-ABC degree program.

B5.9.1.2. CAT II: For CCAF AAS Students. Students complete up to nine semester hours with partner school to complete CCAF AAS degree through dual tracking -- simultaneously fulfilling the CCAF AAS degree requirements and some of the AU-ABC degree program requirements.

B5.9.1.3. CAT III: For CCAF AAS Graduates. Must complete more than 60 semester hours of credit beyond the CCAF AAS and meet all other AU-ABC degree program requirements.

B5.9.1.3. CCAF students and graduates can search for degree programs from a list of military-friendly civilian institutions via the Air Force Virtual Education Center (AFVEC). From there, students can view their education record and CCAF credits earned, apply for Military TA and shop for baccalaureate degree programs. For more information, refer to the AU-ABC [fact page](#).

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**B6. Civil Engineer Career Field Path.** The following chart depicts the 3E0X2 specialty career path:



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**B7. Enlisted Training Path.**

<b>ENLISTED CAREER PATH</b>				
<b>Education and Training Requirements</b>	<b>GRADE REQUIREMENTS</b>			
	Rank	Average Sew-On	Earliest Sew-On	High Year Of Tenure (HYT) (Regular Air Force Only)
<b>Basic Military Training School</b>				
<u>Apprentice Technical School</u> (3-Skill Level) – Complete Technical School	Amn A1C	6 months 16 months		
<u>Upgrade To Journeyman</u> (5-Skill Level) – Complete 5-level CDC – Complete CE 5-Level Core Concept web-based course – Complete AFIT WMGT 131 course – Complete AFIT WENG 170 course – Complete AFIT WMGT 301 course – Complete all 5-level core/duty related tasks	SrA	3 years	28 months TIG, or 36 months TIS, whichever comes first  Below-the-Zone (BTZ) (22 or 30 months)	10 years
<b>Trainer</b>				
– Must be task qualified and certified to train task(s) – Attend AF Training Course – Recommended by the supervisor				
<u>Upgrade To Craftsman</u> (7-Skill Level) – Minimum rank of SSgt – Complete CE 7-Level Core Concept web-based course – Complete all core/duty related tasks – Complete AFIT WMGT 131 course – Complete AFIT WMGT 322, course – Complete AFIT WENG 370 course – Complete the Electrical Power Production Craftsman Course J6ANW3E072-00AA	SSgt TSgt	5 years 9 years	3 years 5 years	20 years 22 years
<b>Certifier</b>				
– 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)				
<b>MSGT</b>				
Completion of Troop Construction Project Management Course (AFIT WMGT 437) is mandatory for Regular Air Force and required for promotion to MSGT. Course highly encouraged for Air Reserve Component MSGTs. Note: this is not a skill level-awarding course.				
<u>Upgrade To Superintendent</u> (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
<u>Chief Enlisted Manager</u> – 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. When worn, Airmen will recognize you 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 is in AFMAN 36-2100, *Military Utilization and Classification* and AFI 36-2903, *Dress and Personal Appearance of Air Force Personnel*.

**B7.4. CE Badge Heraldry.** The gear wheel and compass represent the engineering profession, in both the military and in the private sector. The gear represents the essence of engineering: applying scientific principles and technology to practical ends. To AF engineers, the gear symbolizes an element (representing the built environment) that meshes with others (weapon systems and trained personnel) to enable the AF 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 engineering. 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.** Awarded upon completion of the apprentice course.



**B7.2.2. 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.** Adds a wreath around the star. Awarded to master sergeant or above with 5 years in the specialty from award of the 7-skill level.



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**B8. Enlisted Professional Military Education (EPME).**

**B8.1. Basic EPME (Distance Learning).** Airmen complete basic EPME requirements via distance learning (DL) courses to establish a foundation for continued development and include the Airman Leadership School Distance Learning Program (ALS DLP), Noncommissioned Officer Distance Learning Course (NCO DLC), and Senior Noncommissioned Officer Distance Learning Course (SNCO DLC).

**B8.2. Resident EPME (In-residence).** Resident EPME requirements include Airman Leadership School (ALS), Noncommissioned Officer Academy (NCOA), Senior Noncommissioned Officer Academy (SNCOA), and the Chief Master Sergeant Leadership Course (CLC). Resident attendance is not duplicative of the basic EPME requirements but builds upon the competencies obtained to achieve higher proficiency levels. Resident EPME completion is required for promotion to the grades of SSgt, MSgt, SMSgt and CMSgt.

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

EPME Course	Selection Priority
ALS	1. SSgts 2. SSgt-selects 3. 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.** This section outlines the 3E0X2 specialty qualification requirements for each skill level and establishes the mandatory requirements for entry, award, and retention of each skill level. The STS in attachment 2 identifies the core tasks, diamond tasks, knowledge items, and skill level requirements.

**C2. Specialty Qualification.** Refer to [Air Force Enlisted Classification Directory \(AFEDC\)](#) for the most current minimum requirements for entry into the Electrical Power Production career field. See AFEDC attachment 4 for additional entry physical requirements.

**C2.1. Apprentice (3-Level) Training Requirements. (3E032)**

<b>KNOWLEDGE</b>	Completion of the Electrical Power Production Apprentice Course.
<b>EDUCATION</b>	For entry into this specialty, completion of high school with courses in algebra and physics is desirable.
<b>TRAINING</b>	Completion of the Electrical Power Production Apprentice Course is mandatory for award of this skill level.
<b>EXPERIENCE</b>	None required.
<b>OTHER</b>	<p>For entry, award, and retention of AFSC 3E032, must possess a valid state drivers' license to operate government motor vehicles (GMV) in accordance with AFI 24-301, <i>Vehicle Operations</i>.</p> <p>Normal color vision as defined in DAFMAN 48-123, <i>Medical Examinations and Standards</i>.</p> <p>Maintain local network access IAW AFI 17-130, <i>Cybersecurity Program Management</i> and AFMAN 17-1301, <i>Computer Security (COMPUSEC)</i>.</p>
<b>IMPLEMENTATION</b>	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.
<b>TRAINING SOURCES &amp; RESOURCES</b>	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. (3E052)

<b>KNOWLEDGE</b>	Principles of electronics and electricity, including generation, conversion, transformation, distribution, and utilization. The types, capacity, and purpose of high and low voltage circuits, circuit breakers, switches, fuses, regulators, relays, instruments, and meters associated with electric generation and distribution. Interpreting instrument and meter readings; wiring diagrams, schematics, drawings, and technical publications; techniques of operating and maintaining internal combustion engines, generators, generating plants, distribution panels, and accessory equipment; repair and maintenance of aircraft arresting systems; use and purpose of test equipment; safety rules and practices; environmental policies; principles of management; and operation and repair of electrical power production systems.
<b>EDUCATION</b>	The following education is desirable and strongly encouraged: CCAF Mechanical & Electrical Technology Associates Degree (4VGA).  Completion of the AFIT WENG 170 Cybersecurity for Control Systems and AFIT WMGT 301, Intro to Asset Management courses, and AFIT WMGT 131 SMS BUILDER Level 1 are mandatory.
<b>TRAINING</b>	Completion of 5-level CDC/DL course.  Completion of all the paper-based AFQTPs and their associated web-based courses on <a href="#">myLearning</a> or all core (5^) and diamond (♦) tasks with a minimum passing score of 80%.  Completion of the CE 5-Level Core Concept web-based course located on myLearning is mandatory for award of this skill level.  Certification of all 5-skill level core tasks identified with an asterisk (5^) in the 5-skill level 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. Certification of duty position requirements as identified by the supervisor.  Certification of all CBRN TQT requirements identified with (TQT) after the line item in the STS are to be completed in MOPP 4. Annotate the training on the 623A or AF Form 797.  Certification of duty position requirements identified by the supervisor.
<b>EXPERIENCE</b>	Qualification in and possession of AFSC 3E032.
<b>OTHER</b>	Maintain local network access IAW AFI 17-130, <i>Cybersecurity Program Management</i> and AFMAN 17-1301, <i>Computer Security (COMPUSEC)</i> .
<b>TRAINING SOURCES &amp; RESOURCES</b>	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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<b>IMPLEMENTATION</b>	Entry into 5-level upgrade training is initiated after the individual has completed all 3-level requirements. Initiate qualification training any time individuals are assigned duties they are not certified to perform. Use OJT, CDCs, AFJQSSs, and AFQTPs concurrently to obtain the necessary qualifications.
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**C2.3. Craftsman (7-Level) Training Requirements. (3E072)**

<b>KNOWLEDGE</b>	All 3- and 5-level knowledge requirements apply to 7-level.
<b>EDUCATION</b>	<p>The following education is desirable and strongly encouraged: CCAF Mechanical &amp; Electrical Technology Associates Degree (4VGA).</p> <p>Complete AFIT WMGT 322, Intro to Project Management Course and AFIT WMGT 231, SMS BUILDER Level 2, and AFIT WENG 370, Control Systems Cybersecurity for CE Leaders</p>
<b>TRAINING</b>	<p>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%.</p> <p>Completion of the CE 7-Level Common Core Concept web-based course located on myLearning is mandatory for award of this skill level.</p> <p>Completion of the Electrical Power Production Craftsman Course.</p> <p>Certification of all 7- skill level core tasks identified with an (7^) in the core task column of the STS.</p> <p>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.</p> <p>Certification of duty position requirements identified by the supervisor.</p> <p>Completion of the in residence J3AZR3E052 00CC (10 days), Contingency Power Generation and J3AZR3E052 00TC (14 days) Troubleshooting Electrical Power Generation Equipment courses instructed at Sheppard AFB, TX, are desirable.</p>
<b>EXPERIENCE</b>	<p>Qualification in and possession of AFSC 3E052.</p> <p>Performing or supervising functions of operating and repairing of electrical power production and aircraft arresting systems.</p>

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<b>OTHER</b>	Must maintain local network access IAW AFI 17-130, <i>Cybersecurity Program Management</i> and AFMAN 17-1301, <i>Computer Security</i> .  Electrical Power Production 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 personnel achieving the necessary training and experience at the appropriate point in their career to be more effective in present and future duty positions.
<b>TRAINING SOURCES &amp; RESOURCES</b>	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
<b>MSGT REQUIREMENT</b>	Completion of Troop Construction Project Management Course (AFIT WMGT 437) is mandatory for Regular Air Force 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.
<b>IMPLEMENTATION</b>	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, AFJQSSs, and AFQTPs concurrently to obtain the necessary qualifications.

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

<b>KNOWLEDGE</b>	Principles of electricity and electronics, electrical circuitry, and distribution systems above and below 600 volts. Knowledge of 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.
<b>EDUCATION</b>	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.
<b>TRAINING</b>	Completion of AFIT WMGT 570, Civil Engineer Superintendent Course is mandatory for Regular Air Force and Air Force Reserve SMSgts. This course is highly recommended for Air National Guard SMSgts and mandatory for promotion to CMSgt. Note: This is not a skill level awarding course.

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<b>EXPERIENCE</b>	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, or aircraft arresting systems.
<b>OTHER</b>	Maintain local network access IAW AFI 17-130, <i>Cybersecurity Program Management</i> and AFMAN 17-1301, <i>Computer Security (COMPUSEC)</i> .  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.
<b>IMPLEMENTATION</b>	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. Senior Enlisted Leader. (3E000)**

<b>KNOWLEDGE</b>	Knowledge is mandatory of 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.
<b>TRAINING</b>	Reserve Component Chief Orientation Course (AFRC only).
<b>EXPERIENCE</b>	Possess qualifications in feeder specialty (3E090) prior to award of Civil Engineer Manager code 3E000. Managerial ability to plan, direct, coordinate, implement, and control a wide range of work activity.
<b>EDUCATION</b>	Completion of the grade appropriate EPME is mandatory.
<b>OTHER</b>	N/A.
<b>TRAINING SOURCES &amp; RESOURCES</b>	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
<b>IMPLEMENTATION</b>	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).

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**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.

**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:** Minimal.

D4.1. Constraints. Airmen selected to the grade of SSgt will be required to complete the on-line Electrical Power Production Craftsman Course, once AETC loads the course on [myLearning](#). Until this course has been activated, Airmen will complete core, diamond, and base-specific tasks identified by their supervisor for upgrade to 7-level.

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.

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**SECTION E – TRANSITIONAL TRAINING GUIDE**

There are no transition training requirements for the Electrical Power Production specialty. This section is reserved.

## PART II

**SECTION A - SPECIALTY TRAINING STANDARD**

**A1. Implementation.** This STS will be used for technical training provided by AETC for the Electrical Power Production Apprentice course with classes beginning 1 Mar 2023 and graduating on or after 15 May 2023.

**A2. Purpose.** As prescribed in DAFI 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 or approved automated training record system.

**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, *Emergency Management Program*, 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 (5<sup>^</sup> or 7<sup>^</sup>) in the skill level sub-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 wartime tasks. In response to a wartime scenario, the schoolhouse teaches these tasks 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 AFTR 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*).** Shows formal training requirements provided by AETC. Airmen demonstrate to a supervisor/trainer on the job by a graduate because of training received from AETC courses, web-based training, AFQTPs, or CDC. 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 the CDC and in-resident training.

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**A2.6. Job Qualification Standard (JQS).** The STS becomes a JQS for OJT in an automated training application and used according to DAFI 36-2670, *Total Force Development*. Supervisors/trainers use AFQTPs to ensure Air Force-wide standardized procedures for training Core tasks. 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 Profile section lists the correct duty position title in the trainee's automated training record.

**A2.6.1.2. AFQTP Training and Documentation.** AFQTP or AFQTP assessments have been created for all core (5<sup>^</sup> or 7<sup>^</sup>) 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 trainer enters a completion date. 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, Airmen provide the course completion certificate to the trainer/supervisor for annotation into the automated training record.

**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. Sign off the JQS tab in the automated training record when the trainee receives training on the equipment at home station or at a TDY location.

**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. Place an entry into the trainee 623a; the transcriber and trainee must acknowledge entry.

**A2.6.2.2. Transcribing external training certification.** If a trainee attended a formal training course and received appropriate accreditation, select the formal training section of the users automated training record, and locate the course title in the master task list, then enter the completion date. Contact the UTM to have a missing course loaded from the master catalog. Contact the FDM at AFCEC to have a missing course loaded into the master catalog.

## PART II

**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 DAFI 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 DAFI 36-2670. **Note:** Document career knowledge to submitting a CDC/DL course waiver.

**A2.6.4. Decertification.** When an Airman is unqualified on a task, the supervisor shall identify the task in the JQS. The supervisor shall select the Decertify button and enter a comment on the AF Form 623a explaining why the task was decertified, and then enter the Airman into qualification training. Recertify the individual using the normal certification process.

**A2.6.5. Recertification.** To recertify an Airman on an annual or bi-annual requirement use an AF Form 1098 to document training or the supervisor shall identify the task in the JQS, select the Recertify button, and enter the date the recertification was completed.

**A2.6.6. Training Standard.** Train and certify Airman 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. Use available AFQTPs to train tasks.

**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 with extensive practical experience in their career fields develop Specialty Knowledge Tests (SKTs) at the AETC Airman Advancement Division. Subject matter experts authenticate WAPS material and reference AF Specialty-specific occupational analysis data, to develop SKTs. They develop questions based upon the 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.** Report unsatisfactory performance of individual course graduates to 782 TRG/TGE, 917 Missile Road, Rm 1A300, Sheppard AFB TX 76311-2368 or E-mail [782csil@us.af.mil](mailto:782csil@us.af.mil). Reference specific STS line item and/or paragraphs. For a quicker response, call the Customer Service Information Line (CSIL) at DSN 736-2574 anytime day or night.

## PART II

**SECTION B - COURSE OBJECTIVE LIST (COL)**

**B1. Measurement.** Measure each learning objective 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 indicate the course objectives and delineate the individual progress checklist and rubrics. The minimum standard is 70% on knowledge progress checks. Instructors assist students as the standard for performance progress checks and as warranted during the progress check. Students may be required to repeat all or parts of the learning outcomes until the student attains satisfactory performance.

**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.** The COL lists the objectives in the sequence taught by Blocks of Instruction. Per AETCI 36 - 2651, *Basic Military and Technical Training*, Supervisors can request a detailed listing of the initial skills course objectives by written request through the requesting organizations MAJCOM to the 366th Training Squadron, 3E0X2 Training Manager.

**PART II**

**SECTION C - SUPPORT MATERIAL**

**C1. Air Force Qualification Training Packages.**

C1.1. The 3E0X2 AFQTP tracker identifies the **mandatory AFQTPs** for each skill level.

C1.2. For a complete list of up-to-date AFQTPs applicable to the 3E0X2 AFSC, go to [myLearning](#) or [CE DASH](#) under *documents* tab in the AFSC AFQTP folder.

C1.2.1. In addition to the paper-based AFQTPs there are web-based courses or assessments developed, for specific tasks 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. The 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 Power Production specialty. Refer to the [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.**

<u>Course Number</u>	<u>Title</u>	<u>Developer</u>
J3ABR3E032 00AD	Electrical Power Production Apprentice	366 TRS
J3AZR3E052 00CC	Contingency Power Generation	366 TRS
J3AZR3E052 00TC	Troubleshooting Electrical Power Generation Equipment	366 TRS

**D3. Air Force Career Development Academy (AFCDA).**

<u>Course Number</u>	<u>Title</u>	<u>Edit Code (EC)</u>
CDC Z3E052	Electrical Power Production Journeyman	01

**D4. Exportable/Web-based Courses/Information.**

<u>Course Number</u>	<u>Title</u>	<u>Developer</u>
Web based	3E0X2 Specific Publications	AFCEC/COF
Web based	Arc Flash Safety Awareness QTP	AFCEC/COF
Web based	Automatic Transfer Panels (ATP) QTP	AFCEC/COF
Web based	BEAR Power Unit (BPU) QTP	AFCEC/COF
Web based	Confined Space	AFCEC/COF
Web based	Diesel Generator Engine Sub-Systems QTP	AFCEC/COF
Web based	Electrical Safety Standards QTP	AFCEC/COF
Web based	Electrical Test Equipment QTP	AFCEC/COF
Web based	Electrical Test Equipment Troubleshooting QTP	AFCEC/COF
Web based	Generator Operations QTP	AFCEC/COF
Web based	Grounding Fundamental QTP	AFCEC/COF
Web based	Mobile Aircraft Arresting System (MAAS) QTP	AFCEC/COF
Web based	TF-2 Flood Light Course	AFCEC/COF
Web-based	Rapid Airfield Damage Repair (RADR) Volume Mixer and Asphalt Recycler Course	AFCEC/COF
Web-based	Z3E052 Edit Code 01 - Electrical Power Production Journeyman CDC Assessments	AFCEC/COF
AFIT WENG 170	Cybersecurity for Control Systems	AFIT
AFIT WENG 370	Control Systems Cybersecurity for CE Leaders	AFIT
AFIT WMGT 301	Introduction to Asset Management Course	AFIT
AFIT WMGT 322	Introduction to Project Management	AFIT
AFIT WMGT 437	Troop Construction Project Management	AFIT
AFIT WMGT 131	SMS Builder Level 1	AFIT

## PART II

AFIT WMGT 231     SMS Builder Level 2

AFIT

**D5. Courses/CDCs under Development/Revision**

<u>Course Number</u>	<u>Title</u>	<u>Date Due</u>
J6ANW3E072 00AA 3E052 CDC	Electrical Power Production Craftsman Course Electrical Power Production Web-based CDC	FY24 ECD

**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.

**F2. Home Station Training (HST).** HST is knowledge-based and hands-on training conducted at the individual's home station for contingency operations. The CE Commander ensures training is provided and documented and appoints subject matter experts to conduct training as required.

**F3. Combat Skills Training (CST).** CST is an integral part of any HST program. Lessons learned from past and current contingency operations 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. Mission essential contingency equipment and trainer expertise are not available at most CONUS installations due to the cost and complexity. Personnel must be hands-on certified, and the certification documented in their CFETP. AFI 10-210, *Prime Base Engineer Emergency Force (BEEF) Program*, Attachment 4, identifies the minimum number of trained personnel (positions) by specialty and the frequency requirements. Inadequate training on these key equipment items can negatively affect Air Force contingency operations.

**F5. Expeditionary Readiness Training (ERT).** The AF must train as it fights and continually assess expeditionary readiness training across the AF continuum of learning to produce Airmen ready to support all combatant commands. Expeditionary readiness training must be relevant, timely, synchronized, standardized, and integrated to ensure combatant commands provide a standard presentation of forces to support specified mission requirements, while maximizing efficiency. Expeditionary readiness training divides training into three categories to ensure Airmen receive the right training at the right time: Basic Airman Readiness, Basic Deployment Readiness, and Advanced Deployment Readiness. Refer to AFI 10-405, *Expeditionary Readiness Training Program*, for additional information.

**F6. Training References.**

F6.1. AFI 10-209, *RED HORSE Program*, Chapter 3 and Attachments 4-9 identify the RED HORSE recurring training requirements.

F6.2. AFI 10-210, *Prime Base Engineer Emergency Force (BEEF) Program*, Chapter 4 and Attachments 2-8 identify the Prime BEEF recurring training requirements.

**PART II**

F6.3. DAFI 36-2670, *Total Force Development* and AFI 10-405, *Expeditionary Readiness Training Program* identifies expeditionary readiness training requirements.

F6.4. Web-based Training (WBT) products are available on [myLearning](#). Airmen completing these courses can receive credit for HST. Use group WBT products in a classroom setting to train as many personnel as possible. Document group-training attendance on a sign-in roster IAW AFI 10-210.

**BY ORDER OF THE SECRETARY OF THE AIR FORCE**

**OFFICIAL**

TOM D. MILLER, Lieutenant General, USAF  
DCS/Logistics, Installation and Mission Support

3 Attachments

1. Qualitative Requirements (Proficiency Code Key)
2. 3E0X2 Specialty Training Standard (STS)
3. 3E0X2 AFQTP Documentation record

**Attachment 1**  
**Qualitative Requirements (Proficiency Code Key)**

<i>This Block Is For Identification Purposes Only.</i>		
<b>Name Of Trainee</b> Printed Name ( <i>Last, First, Middle Initial</i> )		Initials (Written)
<b>Printed Name Of Trainer, Certifying Official And Written Initials</b>		
N/I	N/I	

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

<b>Proficiency Code Key</b>		
	<b>Scale Value</b>	<b>Definition: The individual</b>
<b>Task Performance Levels</b>	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)
<b>Task Knowledge Levels</b>	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)
<b>Subject Knowledge Levels</b>	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)

<b>Explanations</b>	
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 3 <sup>rd</sup> 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
~	This symbol in the deployment/SEI/TQT column indicates that the task is CBRN Qualification Task
2b/b	This mark in the course columns shows that training is required but not given due to resource limitations.
(I)	This mark in the course columns is 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 a AFQTP is available for use
△	A white triangle in the task column indicates a AFQTP is under development
Specific tasks not identified with a symbol or proficiency code key indicates no provided training in the course. Major commands and/or units may establish scale values and combat training as dictated by mission requirements.	
Use a task-knowledge scale value 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  
3E0X2 Specialty Training Standard (STS)**

**A2. Specialty Training Standard**

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

**Attachment 2**  
**3E0X2 Specialty Training Standard (STS)**

**A2.2. 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	SEI + TOT ~	Tng Start	Tng Comp	Trainee Initials	Trainer Initials	Certifier Initials	3 Lvl	5 Lvl	7 Lvl	9 Lvl
<b>1.0. CIVIL ENGINEER (CE) CORE CONCEPTS COURSES</b> TR: <a href="#">myLearning</a>		*									
<b>1.1. Complete 5-Level Core Concepts Course</b>		5									
<b>1.2. Complete CE 7-Level Core Concepts Course</b>		7									
<b>1.3. CE Core Concepts</b>								A			
<b>1.4. Cybersecurity Concepts</b>								A			
<b>1.5. Complete WMGT 131 SMS BUILDER Level 1</b>		5									
<b>1.6 Complete AFIT WENG 170 Cybersecurity for Control Systems</b>		5									
<b>1.7. Complete WMGT 231: SMS BUILDER Level 2</b>		7									
<b>1.8. Complete AFIT WMGT 301 Intro to Asset Management</b>		5									
<b>1.9. Complete AFIT WMGT 322 Project Management</b>		7									
<b>1.10. Complete AFIT WENG 370 Control Systems Cybersecurity for CE Leaders</b>		7									
<b>1.11. Complete AFIT WMGT 437 Troop Construction Project Management Course</b>											
<b>2.0. AFSC-SPECIFIC SAFETY STANDARDS</b> TR: AFMAN 32-1065, 91-203; American Red Cross Adult CPR Handbook, American Heart Association; UFC 3-560-01; NFPA 70E <b>Note: QTP required for UGT</b>											
<b>2.1. Electrical safety standards for AFS</b>								B	B		
<b>2.2. Remove victim from energized circuit</b>								3c			

**Attachment 2**  
**3E0X2 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 + TOT ~	Tng Start	Tng Comp	Trainee Initials	Trainer Initials	Certifier Initials	3 Lvl	5 Lvl	7 Lvl	9 Lvl
<b>2.3. First aid for electrical shock</b>											
<b>2.3.1. Principles</b>									B		
<b>2.3.2. Perform</b>								2b			
<b>2.4. Arc Flash Safety</b>									B	B	
<b>2.5. Perform cardiopulmonary resuscitation (CPR)</b>								3c			
<b>2.6. Determine AFS Specific Hazards</b>	5^										
<b>2.7. Lockout/Tagout</b> TR: 29 CFR 1910.147; DAFMAN 91 - 203											
<b>2.7.1. Perform Lockout and Tagout Procedures</b>	5^										
<b>2.7.2. Implement Program</b>	7^										
<b>3.0. AFSC-SPECIFIC PUBLICATIONS</b> TR: TO 00-5-1 <b>Note: QTP required for UGT</b>											
<b>3.1. Technical Order System</b>									B		
<b>3.2. Demonstrate proper use of technical orders</b>	5^							2b			
<b>3.3. Technical order improvement reporting</b>									B		
<b>3.4. Acquire technical orders</b>											
<b>3.5. AFSC Technical Publications</b>									B		
<b>4.0. ELECTRICAL POWER PRODUCTION TOOLS AND TEST EQUIPMENT</b> TR: TOs 32, 33, 34, 35, 38 Series <b>Note: QTP required for UGT</b>											
<b>4.1. Demonstrate proper use of hand tools</b>								2b			
<b>4.2. Specialized tools</b>									B		
<b>4.3. Electrical Diagnostic Tools</b>									B		
<b>4.4. Demonstrate proper use of Hand Held Tachometer</b>											
<b>4.5. Use electrical test equipment:</b>											

**Attachment 2**  
**3E0X2 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 + TOT ~	Tng Start	Tng Comp	Trainee Initials	Trainer Initials	Certifier Initials	3 Lvl	5 Lvl	7 Lvl	9 Lvl
<b>4.5.1.</b> Measure electrical values using a multimeter	5^							2b			
<b>4.5.2.</b> Earth Resistance tester											
<b>4.5.3.</b> Measure current using a clamp-on ammeter	5^							2b			
<b>4.5.4.</b> Megohmmeter											
<b>4.5.5.</b> Battery load tester	5^										
<b>4.5.6.</b> Phase rotation meter	5^										
<b>4.5.7.</b> Power Analyzer											
<b>5.0. GENERAL POWER PRODUCTION TASKS</b> TR: UFC 3-540-07; EGSA Guide to On-Site Power Generation <b>Note: QTP required for UGT</b>											
<b>5.1.</b> Principles of corrosion control								A	B		
<b>5.2.</b> Types of engine pre-heating devices								A	B		
<b>5.3. Load Banks</b>											
<b>5.3.1.</b> Components and theory of operation								A	B		
<b>5.3.2.</b> Operate	5^							2b			
<b>5.4. Battery Chargers</b>											
<b>5.4.1.</b> Components and theory of operation								B	B		
<b>5.4.2.</b> Inspect								2b			
<b>5.4.3.</b> Adjust								2b			
<b>5.4.4.</b> Troubleshoot								2b			
<b>5.4.5.</b> Replace components											
<b>5.5.</b> Perform soldering											
<b>6.0. ELECTRICAL FUNDAMENTALS</b> TR: EGSA Guide to On-Site Power Generation; manufacturer's manuals <b>Note: QTP required for UGT</b>											
<b>6.1.</b> Basic electrical concepts and terms								A	B		

**Attachment 2**  
**3E0X2 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 + TOT ~	Tng Start	Tng Comp	Trainee Initials	Trainer Initials	Certifier Initials	3 Lvl	5 Lvl	7 Lvl	9 Lvl
<b>6.2. Fundamentals of Direct Current (DC)</b>								B	B		
<b>6.3. Fundamentals of Alternate Current (AC)</b>								B	B		
<b>6.4. Wiring Diagram</b>											
<b>6.4.1. Types</b>								A	B		
<b>6.4.2. Electrical components and symbols</b>								A	B		
<b>6.4.3. Demonstrate proper use of wiring diagrams</b>	5^							2b			
<b>6.5. Principles of operation of components:</b>											
<b>6.5.1. Diodes</b>								B	B		
<b>6.5.2. Inductors</b>									A		
<b>6.5.3. Capacitors</b>									A		
<b>6.5.4. Resistors</b>									B		
<b>6.6. Test electrical components:</b>											
<b>6.6.1. Inductors</b>											
<b>6.6.2. Capacitors</b>											
<b>6.6.3. Resistors</b>											
<b>6.6.4. Diodes</b>								2b			
<b>7.0. GENERATOR SET GROUNDING FUNDAMENTALS</b> <small>TR: AFMAN 32-1065; NFPA 70, 77; UFC 3-560-01; IEEE Standard 142 - Recommended Practice for Grounding of Industrial and Commercial Power; EGSA Guide to On-Site Power Generation</small> <b>Note: QTP required for UGT</b>											
<b>7.1. Types of Grounds</b>								A	B		
<b>7.2. Principles of Grounding</b>								B	B		
<b>7.3. Install Equipment Ground</b>	5^							2b			
<b>7.4. Test Grounds</b>								2b			
<b>7.5. Troubleshoot grounds</b>											
<b>7.6. Bonding</b>								B			

**Attachment 2**  
**3E0X2 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 + TOT ~	Tng Start	Tng Comp	Trainee Initials	Trainer Initials	Certifier Initials	3 Lvl	5 Lvl	7 Lvl	9 Lvl
7.7. Determine Bonding Requirements	7^										
<b>8.0. ENGINE FUNDAMENTALS</b> TR: UFC 3-540-07; EGSA Guide to On-Site Power Generation <b>Note: QTP required for UGT</b>											
<b>8.1. Gasoline engines</b>											
8.1.1. Components and theory of operation								A	B		
8.1.2. Engine malfunctions								A	B		
8.1.3. Perform engine tune-up	5^							2b			
<b>8.2. Diesel engines</b>											
8.2.1. Components and theory of operation											
8.2.1.1. Two-stroke								A	B		
8.2.1.2. Four-stroke								B	B		
8.2.2. Engine malfunctions								A	B		
<b>8.2.3. Inspect:</b>											
8.2.3.1. Vibration damper											
8.2.3.2. Timing gears											
8.2.3.3. Cylinder head											
8.2.3.4. Intake and exhaust valves											
8.2.3.5. Engine block											
<b>8.2.4. Replace</b>											
8.2.4.1. Vibration damper											
8.2.4.2. Timing gears											
8.2.4.3. Cylinder head											
8.2.4.4. Intake and exhaust valves											
8.2.4.5. Valve spring assemblies											
8.2.4.6. Engine gaskets and seals									B		
<b>8.2.5. Adjust:</b>											
8.2.5.1. Intake and exhaust valves								2b			
<b>9.0. ENGINE DC ELECTRICAL SYSTEM</b>											

**Attachment 2**  
**3E0X2 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 + TOT ~	Tng Start	Tng Comp	Trainee Initials	Trainer Initials	Certifier Initials	3 Lvl	5 Lvl	7 Lvl	9 Lvl
TR: UFC 3-540-07; EGSA Guide to On-Site Power Generation; applicable manufacturer's manuals <b>Note: QTP required for UGT</b>											
<b>9.1.</b> Components and theory of operation								B	B		
<b>9.2.</b> Inspect System								2b			
<b>9.3.</b> Troubleshoot	5^							2b			
<b>9.4. Replace:</b>											
<b>9.4.1.</b> Battery charging alternator											
<b>9.4.2.</b> Starter motor								2b			
<b>9.4.3.</b> Starter solenoid											
<b>9.5. Batteries:</b>											
<b>9.5.1.</b> Types								A	B		
<b>9.5.2.</b> Test and Maintain								2b			
<b>9.5.3.</b> Replace	5^							2b			
<b>10.0. ENGINE LUBRICATION SYSTEM</b> TR: UFC 3-540-07; EGSA Guide to On-Site Power Generation <b>Note: QTP required for UGT</b>											
<b>10.1.</b> Components and theory of operation								B	B		
<b>10.2.</b> Service lubrication System	5^							2b			
<b>10.3.</b> Test lube oil								2b			
<b>10.4.</b> Troubleshoot											
<b>10.5. Replace Components</b>											
<b>10.5.1.</b> Oil pump											
<b>10.5.2.</b> Oil cooler											
<b>10.5.3.</b> Sending units											
<b>10.5.4.</b> Protective devices											
<b>11.0. FUEL SYSTEMS</b> TR: NFPA 30, 70; 32-204; UFC 3-540-07; EGSA Guide to On-Site Power Generation <b>Note: QTP required for UGT</b>											
<b>11.1.</b> Gaseous Fuels											

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	A	B	A	B	C	D	E	A	B	C	D
	Core ^ Cert	Deployment * SEI + TOT ~	Tng Start	Tng Comp	Trainee Initials	Trainer Initials	Certifier Initials	3 Lvl	5 Lvl	7 Lvl	9 Lvl
<b>11.1.1.</b> Components and theory of operation								A	B		
<b>11.1.2.</b> Inspect								2b			
<b>11.1.3.</b> Troubleshoot											
<b>11.1.4.</b> Adjust carburetor	5^							1a			
<b>11.1.5. Replace:</b>											
<b>11.1.5.1.</b> Fuel pump											
<b>11.1.5.2.</b> Filters,strainers											
<b>11.1.5.3.</b> Carburetors											
<b>11.2. Diesel</b>											
<b>11.2.1.</b> Types, components, and theory of operation								A	B		
<b>11.2.2.</b> Inspect	5^							2b			
<b>11.2.3.</b> Prime and bleed	5^							2b			
<b>11.2.4.</b> Time fuel injection pumps											
<b>11.2.5.</b> Test fuel for water content								2b			
<b>11.2.6.</b> Troubleshoot	5^							b			
<b>11.2.7. Replace:</b>											
<b>11.2.7.1.</b> Filters,strainers								2b			
<b>11.2.7.2.</b> Injectors											
<b>11.2.7.3.</b> Sending units											
<b>11.2.7.4.</b> Protective devices											
<b>12.0. ENGINE COOLING SYSTEM</b> TR: UFC 3-540-07; EGSA Guide to On-Site Power Generation <b>Note: QTP required for UGT</b>											
<b>12.1.</b> Components and theory of operation								A	B		
<b>12.2.</b> Inspect System								2b			
<b>12.3.</b> Troubleshoot	5^										
<b>12.4. Replace</b>											
<b>12.4.1.</b> Drive belts	5^							2b			
<b>12.4.2.</b> Heater											

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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 + TOT ~	Tng Start	Tng Comp	Trainee Initials	Trainer Initials	Certifier Initials	3 Lvl	5 Lvl	7 Lvl	9 Lvl
<b>12.4.3.</b> Sending units											
<b>12.4.4.</b> Protective devices											
<b>12.4.5.</b> Filters											
<b>12.5.</b> Maintain	5^							2b			
<b>12.6.</b> Test antifreeze											
<b>12.7.</b> Coolant additives									B		
<b>13.0. ENGINE GOVERNOR SYSTEMS</b> <small>TR: UFC 3-540-07; EGSA Guide to On-site Power Generation Note: QTP required for UGT</small>											
<b>13.1. Electronic Governors</b>											
<b>13.1.1.</b> Components and theory of operation								B	B		
<b>13.1.2.</b> Inspect system								2b			
<b>13.1.3.</b> Adjust set points	5^							2b			
<b>13.1.4.</b> Troubleshoot	5^							2b			
<b>13.1.5. Replace Components</b>											
<b>13.1.5.1.</b> Control module											
<b>13.1.5.2.</b> Actuator											
<b>13.1.5.3.</b> Magnetic pickup								2b			
<b>14.0. INTAKE AND EXHAUST SYSTEMS</b> <small>TR: UFC 3-540-07; EGSA Guide to On-Site Power Generation; applicable manufacturer's manuals Note: QTP required for UGT</small>											
<b>14.1.</b> Components and theory of operation								B	B		
<b>14.2.</b> Inspect systems								2b			
<b>14.3. Replace:</b>											
<b>14.3.1.</b> Air cleaner/filter											
<b>14.3.2.</b> Turbocharger											
<b>14.3.3.</b> Aftercooler											
<b>14.3.4.</b> Intake manifold											
<b>14.3.5.</b> Exhaust manifold											

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	A	B	A	B	C	D	E	A	B	C	D
	Core ^ Cert	Deployment * SEI + TOT ~	Tng Start	Tng Comp	Trainee Initials	Trainer Initials	Certifier Initials	3 Lvl	5 Lvl	7 Lvl	9 Lvl
<b>14.3.6.</b> Expansion joint											
<b>14.3.7.</b> Muffler											
<b>15.0. AC GENERATING SYSTEM</b> <small>TR: UFC 3-550-07; EGSA Guide to On-Site Power Generation; applicable manufacturer's manuals</small>											
<b>Note: QTP required for UGT</b>											
<b>15.1. Alternator</b>											
<b>15.1.1.</b> Components and theory of operation								A	B		
<b>15.1.2.</b> Inspect											
<b>15.1.3.</b> Test											
<b>15.1.4.</b> Replace											
<b>15.2. Rectifier assembly</b>											
<b>15.2.1.</b> Inspect								2b			
<b>15.2.2.</b> Test	5^							2b			
<b>15.2.3.</b> Replace	5^							2b			
<b>15.3. Controls</b>											
<b>15.3.1.</b> Components and theory of operation								A	B		
<b>15.3.2.</b> Inspect components								2b			
<b>15.3.3.</b> Troubleshoot	7^										
<b>15.3.4.</b> Replace											
<b>15.3.4.1.</b> Voltage regulator											
<b>15.3.4.2.</b> Exciter											
<b>15.3.4.3.</b> Transformers											
<b>15.3.4.4.</b> Control panel components											
<b>15.4. Protective devices</b>											
<b>15.4.1.</b> Components and theory of operation								A	B		
<b>15.4.2.</b> Inspect								2b			
<b>15.4.3.</b> Test:											
<b>15.4.3.1.</b> Circuit breakers											

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	A	B	A	B	C	D	E	A	B	C	D
	Core ^ Cert	SEI + TOT ~ Deployment *	Tng Start	Tng Comp	Trainee Initials	Trainer Initials	Certifier Initials	3 Lvl	5 Lvl	7 Lvl	9 Lvl
<b>15.4.3.2. Relays</b>	5^							2b			
<b>15.4.3.3. Fuses</b>								2b			
<b>15.4.4. Replace:</b>											
<b>15.4.4.1. Circuit breakers</b>											
<b>15.4.4.2. Relays</b>											
<b>15.4.4.3. Fuses</b>											
<b>16.0. Real Property Installed Equipment (RPIE) Generators</b> TR: NFPA 70; NFPA 110; AFMAN 32-1062; UFC 3-540-07; UFC 3-540-01; applicable manufacturer's manuals; AFPMTLs <b>Note: QTP required for UGT</b>											
<b>16.1. Periodic Inspection and Preventative Maintenance</b>											
<b>16.1.1. Inspection and maintenance requirements</b>								A	B		
<b>16.1.2. Perform Semi-monthly</b>											
<b>16.1.3. Perform Monthly</b>								2b			
<b>16.1.4. Perform Semi-annual</b>								2b			
<b>16.2. Perform emergency shutdown</b>								b			
<b>16.3. Reconfigure alternator voltage output</b>	7^										
<b>16.4. Calculate:</b>											
<b>16.4.1. kW/kVA load</b>	5^							2b	c		
<b>16.4.2. Amperage load</b>	5^							2b	c		
<b>16.4.3. Fuel requirements</b>								2b	b		
<b>16.4.4. Power requirements</b>	7^								b		
<b>17.0. AUTOMATIC TRANSFER SWITCHES</b> TR: UFC 3-520-01, 3-540-01; NFPA 110, 111; AFMAN 32-1062; EGSA Guide to On-Site Power Generation; applicable manufacturer's manuals <b>Note: QTP required for UGT</b>											
<b>17.1. Components and theory of operation</b>								A	B		

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	A	B	A	B	C	D	E	A	B	C	D
	Core ^ Cert	Deployment * SEI + TOT ~	Tng Start	Tng Comp	Trainee Initials	Trainer Initials	Certifier Initials	3 Lvl	5 Lvl	7 Lvl	9 Lvl
<b>17.2. Inspect</b>	5^							2b			
<b>17.3. Test</b>	5^							2b			
<b>17.4. Adjust</b>											
<b>17.5. Troubleshoot</b>	7^										
<b>17.6. Replace components</b>											
<b>17.7. Configure with computer software</b>											
<b>17.8. Compatibility between transfer switch, generator, and electrical service</b>									B		
<b>17.9. Install</b>											
<b>17.10. Programmable Logic Controllers: Components and theory of operation</b>								A	B		
<b>17.11. Commercial configuration software</b>											
<b>18.0. AIRCRAFT ARRESTING SYSTEMS</b> TR: TO 35E8-2 Series; AFI 32-1043; FC 3-260-18F <b>Note: QTP required for UGT</b>											
<b>18.1. E5 Barrier</b>											
<b>18.1.1. Components and theory of operation</b>								A	B		
<b>18.1.2. Configuration</b>								A	B		
<b>18.2. Modular BAK-14 Cable Support System</b>											
<b>18.2.1. Components, theory of operation and configuration</b>								A	B		
<b>18.2.2. Maintenance and inspection requirements</b>								A	B		
<b>18.2.3. Perform monthly inspection</b>											
<b>18.3. BAK-15 Aircraft Arresting System</b>											
<b>18.3.1. Components and theory of operation</b>								A	B		
<b>18.3.2. Configurations</b>								A	B		

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	A	B	A	B	C	D	E	A	B	C	D
	Core ^ Cert	Deployment * SEI + TOT ~	Tng Start	Tng Comp	Trainee Initials	Trainer Initials	Certifier Initials	3 Lvl	5 Lvl	7 Lvl	9 Lvl
<b>18.3.3.</b> Maintenance and inspection requirements								A	B		
<b>18.3.4.</b> Perform Monthly Inspection											
<b>18.4. Textile Brake Aircraft Arresting System</b>											
<b>18.4.1.</b> Components and theory of operation								A	B		
<b>18.4.2.</b> Configurations								A	B		
<b>18.4.3.</b> Maintenance and inspection requirements								A	B		
<b>18.4.4.</b> Perform Monthly Inspection											
<b>18.5. Type H Support Systems</b>											
<b>18.5.1.</b> Components and theory of operation								A	B		
<b>18.5.2.</b> Configuration								A	B		
<b>18.5.3.</b> Maintenance and inspection requirements								A	B		
<b>18.5.4.</b> Perform Monthly Inspection											
<b>18.6. BAK-12 Aircraft Arresting System</b>											
<b>18.6.1.</b> Components and theory of operation								B	B		
<b>18.6.2.</b> Configuration								B	B		
<b>18.6.3.</b> Maintenance and inspection requirements								A	B		
<b>18.6.4.</b> Determine tape replacement using Regime Chart											
<b>18.6.5. Perform periodic inspections and preventative maintenance</b>											
<b>18.6.5.1.</b> Daily											
<b>18.6.5.2.</b> Weekly											
<b>18.6.5.3.</b> Monthly											
<b>18.6.5.4.</b> Quarterly											
<b>18.6.5.5.</b> Semi-annual								2b			

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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 + TOT ~	Tng Start	Tng Comp	Trainee Initials	Trainer Initials	Certifier Initials	3 Lvl	5 Lvl	7 Lvl	9 Lvl
<b>18.6.5.6.</b> After arrestment											
<b>18.6.6. Troubleshoot</b>											
<b>18.6.6.1.</b> Brake assembly											
<b>18.6.6.2.</b> Rewind system											
<b>18.6.6.3.</b> Hydraulic system											
<b>18.6.7. Replace Components</b>											
<b>18.6.7.1.</b> Rewind System											
<b>18.6.7.2.</b> Hydraulic System											
<b>19.0. AFSC-SPECIFIC CONTINGENCY RESPONSIBILITIES</b> <small>TR: AFIs 10-209, 10-210; NEC; Army TMs 10-8340-207-14, 10- 450-200-12; WMP CE Supplement; AFPAM 10-219 Vol 2, 3, 4 &amp; 5 Note: QTP required for UGT</small>											
<b>19.1.</b> Generators											
<b>19.1.1.</b> 200 kW or less											
<b>19.1.1.1.</b> Construction features and components		*						A	B		
<b>19.1.1.2.</b> Set up generator for connection to load (TQT)	5^	* ~						2b			
<b>19.1.1.3. Cables</b>											
<b>19.1.1.3.1.</b> Selection		*						A	B		
<b>19.1.1.3.2.</b> Phase identification		*							B		
<b>19.1.1.3.3.</b> Connect	5^	*						2b			
<b>19.1.1.3.4.</b> Check phase rotation	5^	*						2b			
<b>19.1.1.4.</b> Perform single unit operations (TQT)	5^	* ~						2b			
<b>19.1.1.5.</b> Perform parallel unit operation ♦	5^	*						2b			
<b>19.1.1.6. Troubleshoot:</b>											
<b>19.1.1.6.1.</b> Engine system	5^	*						b			
<b>19.1.1.6.2.</b> Electrical system	5^	*						2b			

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	A	B	A	B	C	D	E	A	B	C	D
	Core ^ Cert	Deployment * SEI + TOT ~	Tng Start	Tng Comp	Trainee Initials	Trainer Initials	Certifier Initials	3 Lvl	5 Lvl	7 Lvl	9 Lvl
<b>19.1.2. BEAR Power Unit (BPU) Generator:</b> TR: TO 35C2-3-474-11; AFTTP 3-32.34v5											
<b>19.1.2.1. Construction features</b>		*						A	B		
<b>19.1.2.2. Component identification</b>		*						A	B		
<b>19.1.2.3. Medium-voltage safety</b>		*						B	B		
<b>19.1.2.4. Digital Control System</b>		*							B		
<b>19.1.2.5. Functions of InPower BPU</b>		*							B		
<b>19.1.2.6. Installation requirements</b>		*						A	B		
<b>19.1.2.7. Perform Operations</b>											
<b>19.1.2.7.1. Single-unit ♦</b>	5^	*						2b			
<b>19.1.2.7.2. Parallel ♦</b>	5^	*						2b			
<b>19.1.2.8. Other-than-normal generator operations</b>		*						A	B		
<b>19.1.2.9. Periodic Inspection requirements</b>											
<b>19.1.2.9.1. Mechanical</b>		*						A	B		
<b>19.1.2.9.2. Electrical</b>		*						A	B		
<b>19.1.2.10. Fault codes</b>											
<b>19.1.2.10.1. Engine systems</b>		*							B		
<b>19.1.2.10.2. Electrical</b>		*							B		
<b>19.1.2.10.3. Use InPower BPU</b>		*									
<b>19.1.2.10.4. Troubleshoot ♦</b>	5^	*									
<b>19.1.2.11. External Fuel System</b>											
<b>19.1.2.11.1. Set up fuel storage area</b>		*						b			
<b>19.1.2.11.2. Connect fuel supply</b>		*						b			
<b>19.2. Mobile Aircraft Arresting System (MAAS)</b> TR: TOs 35E8-2, 38G1; AFPAM 10-219, Vol 3, 4 & 5; AFMAN 32-1043; FC 3-260-18F9											
<b>19.2.1. Components, theory of operation and configuration</b>		*						B	B		

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	Core ^ Cert	SEI + TOT ~	Tng Start	Tng Comp	Trainee Initials	Trainer Initials	Certifier Initials	3 Lvl	5 Lvl	7 Lvl	9 Lvl
<b>19.2.2.</b> Installation planning		*								B	
<b>19.2.3.</b> Unidirectional installation		*							A	B	
<b>19.2.4. Perform unidirectional installation</b>											
<b>19.2.4.1.</b> Soil ♦	5^	*							2b		
<b>19.2.4.2.</b> Concrete ♦	5^	*							2b		
<b>19.2.4.3.</b> Asphalt over soil		*							b		
<b>19.2.4.4.</b> Asphalt over concrete		*							b		
<b>19.2.5.</b> Bi-directional installation		*							A	B	
<b>19.2.6. Perform bidirectional installation</b>											
<b>19.2.6.1.</b> Soil		*							b		
<b>19.2.6.2.</b> Concrete		*							b		
<b>19.2.7.</b> Attach hook cable ♦	5^	*							2b		
<b>19.2.8.</b> Tension hook cable ♦	5^	*							2b		
<b>19.2.9.</b> Proof load installation ♦	5^	*							b		
<b>19.2.10.</b> Reconstitute MAAS		*							2b		
<b>19.2.11.</b> MAAS periodic inspections and preventive maintenance requirements		*							A	B	
<b>19.2.12. Perform periodic inspections</b>											
<b>19.2.12.1.</b> Daily ♦	5^	*									
<b>19.2.12.2.</b> Weekly ♦	5^	*									
<b>19.2.12.3.</b> Monthly ♦	5^	*							2b		
<b>19.2.12.4.</b> Quarterly ♦	5^	*									
<b>19.2.12.5.</b> Semi-annual ♦	5^	*									
<b>19.2.12.6.</b> After arrestment ♦	5^	*							2b		
<b>19.2.13. Troubleshoot:</b>											
<b>19.2.13.1.</b> Brake assembly ♦	5^	*									
<b>19.2.13.2.</b> Hydraulic system ♦	5^	*									
<b>19.2.13.3.</b> Trailer hydraulic system♦	5^	*									

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	A	B	A	B	C	D	E	A	B	C	D
	Core ^ Cert	Deployment * SEI + TOT ~	Tng Start	Tng Comp	Trainee Initials	Trainer Initials	Certifier Initials	3 Lvl	5 Lvl	7 Lvl	9 Lvl
<b>19.2.14. Replace components:</b>											
19.2.14.1. Hydraulic system		*									
19.2.14.2. Trailer hydraulic system		*									
<b>19.3. Lightweight Fairlead Beam (LWFB)</b> TR: TO 35E8-2-11-2; AFTTP 3-32.15											
19.3.1. Installation requirements		*						A	B		
<b>19.3.2. Perform installation</b>											
19.3.2.1. Concrete ♦	5^	*									
19.3.2.2. Soil ♦	5^	*									
<b>19.3.3. Perform LWFB periodic inspections:</b>											
19.3.3.1. Daily		*									
19.3.3.2. Monthly		*									
<b>19.4. Mobile Runway Edge Sheaves (MRES)</b> TR: TO 35E8-2-3-1; AFTTP 3-32.15											
19.4.1. Installation requirements		*						A	B		
19.4.2. Perform concrete installation ♦	5^	*									
19.4.3. Perform soil installation ♦	5^	*									
19.4.4. Periodic inspection requirements		*						A	B		
<b>19.4.5. Perform Inspections</b>											
19.4.5.1. Daily											
19.4.5.2. Monthly											
<b>19.5. Contingency Planning Factors</b> TR: AFPAM 10-219, Vol 5; AFH 10-222, Vol 1, 2 & 5											
19.5.1. Basic Expeditionary Airfield Resources (BEAR)		*						A	B		
19.5.2. Contingency electrical planning		*							B		
<b>19.5.3. Beddown using BEAR assets</b>											

**Attachment 2**  
**3E0X2 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 + TOT ~	Tng Start	Tng Comp	Trainee Initials	Trainer Initials	Certifier Initials	3 Lvl	5 Lvl	7 Lvl	9 Lvl
TR: AFH 10-222, Vol 1 & 2; AFTTP 3-32.34v5		*									
<b>19.5.3.1.</b> Tent lighting installation TR: AFPAM 10-219, Vol 2		*									
<b>19.5.3.2.</b> Remote Area Lighting System (RALS) installation TR: AFPAM 10-219, Vol 5; TO 35F5-22-1		*									
<b>19.5.4. Small Shelter System (SSS)</b> TR: T.O. 35E5-6-11											
<b>19.5.4.1.</b> Purpose								A	B		
<b>19.5.4.2.</b> Assemble		*						2b			
<b>19.5.4.3.</b> Disassemble		*						2b			
<b>19.5.4.4.</b> Maintain								b			
<b>19.6. Telescopic floodlight set</b> TR: T.O 35F5-5-21-1											
<b>19.6.1.</b> Install		*									
<b>19.6.2.</b> Inspect		*									
<b>19.6.3.</b> Operate		*						2b			
<b>19.6.4.</b> Troubleshoot		*									
<b>19.6.5.</b> Maintain		*									
<b>19.7. Electrical distribution systems</b> TR: TOs 35F14-1-1 , 35CA6-1-101,35CA2-2-17-1; AFMAN 32-1065; AFTTP 3-32.34v5											
<b>19.7.1.</b> Primary distribution system		*						A	B		
<b>19.7.2.</b> Secondary distribution system		*						A	B		
<b>19.7.3.</b> Connect generator to Secondary Distribution Center (SDC)		*						2b			

**Attachment 3****3E0X2 Air Force Qualification Training Package (AFQTP) Documentation Record****A3. AFQTP Documentation Record.**

A3.1. To ensure each Utility Systems and Fuels Systems Maintenance 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 ensure all aspects of the task are covered sufficiently and provide additional task knowledge, in preparation for hands-on training. AFQTPs summarize procedures on a task performance checklist for use by trainers, certifiers, and trainees.

A3.2.1. The UTM or supervisor can download paper-based AFQTP's. Paper-based AFQTP's are found on [\*\*CE DASH\*\*](#) under documents in the AFQTP folder.

A3.2.2. In addition to the paper-based AFQTPs there are web-based courses or assessments developed for certain tasks that are available on [\*\*myLearning\*\*](#) under AFCEC in the 3E0X2 or Home Station 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**  
**3E0X2 Air Force Qualification Training Package (AFQTP) Documentation Record**

**A3.4. 3E0X2 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
<b>1.0.</b>	<b>CIVIL ENGINEER (CE) COMMON CORE CONCEPTS COURSES</b>						
1.1.	Complete 5-Level Core Concepts Course	5					
1.2.	Complete CE 7-Level Core Concepts Course	7					
1.5.	Complete WMGT 131 SMS BUILDER Level 1	5					
1.6.	Complete AFIT WENG 170 Cybersecurity for Control Systems	5					
1.7.	Complete WMGT 231 SMS BUILDER Level 2	7					
1.8.	Complete AFIT WMGT 301 Intro to Asset Management	5					
1.9.	Complete AFIT WMGT 322 Project Management	7					
1.10.	Complete AFIT WENG 370 Control Systems Cybersecurity for CE Leaders	7					
<b>2.0.</b>	<b>AFSC-SPECIFIC SAFETY STANDARDS</b>						
2.6.	Determine AFS Specific Hazards	5					
<b>2.7.</b>	<b>Lockout/Tagout</b>						
2.7.1.	2.7.1. Perform Lockout and Tagout Procedures	5					
2.7.2.	2.7.2. Implement Program	7					
<b>3.0.</b>	<b>AFSC SPECIFIC PUBLICATIONS</b>						
3.2.	Demonstrate proper use of technical orders	5					
<b>4.0.</b>	<b>ELECTRICAL POWER PRODUCTION TOOLS AND TEST EQUIPMENT</b>						
<b>4.5.</b>	<b>Use electrical test equipment:</b>						
4.5.1.	Measure electrical values using a multimeter	5					
4.5.3.	Measure current using a clamp-on ammeter	5					
4.5.5.	Battery load tester	5					
4.5.6.	Phase rotation meter	5					
<b>5.0.</b>	<b>GENERAL POWER PRODUCTION TASKS</b>						
<b>5.3.</b>	<b>Load Banks</b>						
5.3.2	Operate	5					
<b>6.0.</b>	<b>ELECTRICAL FUNDAMENTALS</b>						
<b>6.4.</b>	<b>Wiring Diagrams</b>						
6.4.3.	Demonstrate proper use of wiring diagrams	5					
<b>7.0.</b>	<b>GENERATOR SET GROUNDING</b>						
7.3.	Install equipment ground	5					
7.7	Determine Bonding Requirements	7					
<b>8.0.</b>	<b>ENGINE FUNDAMENTALS</b>						
<b>8.1.</b>	<b>Gasoline engines</b>						

**Attachment 3**  
**3E0X2 Air Force Qualification Training Package (AFQTP) 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
<b>8.1.3.</b>	Perform engine tune-up	5					
<b>9.0.</b>	<b>ENGINE DC ELECTRICAL SYSTEM</b>						
<b>9.3.</b>	Troubleshoot	5					
<b>9.5.</b>	<b>Batteries:</b>						
<b>9.5.3.</b>	Replace	5					
<b>10.0.</b>	<b>ENGINE LUBRICATION SYSTEM</b>						
<b>10.2.</b>	Service engine lubrication system	5					
<b>11.0.</b>	<b>FUEL SYSTEM</b>						
<b>11.1</b>	<b>Gaseous Fuels</b>						
<b>11.1.4.</b>	Adjust carburetor	5					
<b>11.2.</b>	<b>Diesel</b>						
<b>11.2.2.</b>	Inspect	5					
<b>11.2.3</b>	Prime and bleed	5					
<b>11.2.6.</b>	Troubleshoot	5					
<b>12.0.</b>	<b>ENGINE COOLING SYSTEM</b>						
<b>12.3.</b>	Troubleshoot	5					
<b>12.4.</b>	Replace:						
<b>12.4.1.</b>	Drive belts	5					
<b>12.5</b>	Maintain	5					
<b>13.0.</b>	<b>13. ENGINE GOVERNOR SYSTEMS</b>						
<b>13.1.</b>	Electronic Governors						
<b>13.1.3.</b>	Adjust set points	5					
<b>13.1.4.</b>	Troubleshoot	5					
<b>15.0.</b>	<b>AC GENERATING SYSTEM</b>						
<b>15.2.</b>	Rectifier Assemble						
<b>15.2.2.</b>	Test	5					
<b>15.2.3.</b>	Replace	5					
<b>15.3.</b>	<b>Controls</b>						
<b>15.3.3.</b>	Troubleshoot	7					
<b>15.4.3.</b>	<b>Test</b>						
<b>15.4.3.2.</b>	Relays	5					
<b>16.0.</b>	<b>Real Property Installed Equipment (RPIE) Generators</b>						
<b>16.3.</b>	Reconfigure Alternator Voltage Output	7					
<b>16.4.</b>	<b>Calculations</b>						
<b>16.4.1.</b>	kW/kVA load	5					
<b>16.4.2.</b>	Amperage load	5					
<b>16.4.4.</b>	Power requirements	7					
<b>17.0.</b>	<b>AUTOMATIC TRANSFER SWITCHES</b>						
<b>17.2.</b>	Inspect	5					
<b>17.3.</b>	Test	5					
<b>17.5.</b>	Troubleshoot	7					
<b>19.0.</b>	<b>AFSC SPECIFIC CONTINGENCY RESPONSIBILITIES</b>						
<b>19.1.</b>	<b>Generators</b>						
<b>19.1.1.</b>	<b>200 kW or less</b>						
<b>19.1.1.2.</b>	Set up generator for connection to load	5	*				
<b>19.1.1.3.</b>	<b>Cables</b>						
<b>19.1.1.3.3.</b>	Connect	5	*				
<b>19.1.1.3.4.</b>	Check phase rotation	5	*				
<b>19.1.1.4.</b>	Perform single unit operations	5	*				

**Attachment 3**  
**3E0X2 Air Force Qualification Training Package (AFQTP) 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
<b>19.1.1.5</b>	Perform parallel unit operation ♦	5	*				
<b>19.1.1.6.</b>	<b>Troubleshoot</b>						
<b>19.1.1.6.1.</b>	Engine system	5	*				
<b>19.1.1.6.2.</b>	Electrical system	5	*				
<b>19.1.2.</b>	<b>BEAR Power Unit (BPU) Generator:</b>						
<b>19.1.2.7.</b>	<b>Perform Operations:</b>						
<b>19.1.2.7.1.</b>	Single unit ♦	5	*				
<b>19.1.2.7.2.</b>	Parallel operations ♦	5	*				
<b>19.1.2.10.</b>	<b>Fault codes</b>						
<b>19.1.2.10.4.</b>	Troubleshoot ♦	5	*				
<b>19.2.</b>	<b>Mobile Aircraft Arresting System (MAAS)</b>						
<b>19.2.4.</b>	<b>Perform unidirectional installation</b>						
<b>19.2.4.1.</b>	Soil ♦	5	*				
<b>19.2.4.2.</b>	Concrete ♦	5	*				
<b>19.2.7.</b>	Attach hook cable ♦	5	*				
<b>19.2.8.</b>	Tension hook cable ♦	5	*				
<b>19.2.9.</b>	Proof load installation ♦	5	*				
<b>19.2.12.</b>	<b>Perform MAAS periodic inspections and preventive maintenance</b>						
<b>19.2.12.1.</b>	Daily ♦	5	*				
<b>19.2.12.2.</b>	Weekly ♦	5	*				
<b>19.2.12.3.</b>	Monthly♦	5	*				
<b>19.2.12.4.</b>	Quarterly ♦	5	*				
<b>19.2.12.5.</b>	Semi-annual ♦	5	*				
<b>19.2.12.6.</b>	After arrestment♦	5	*				
<b>19.2.13.</b>	<b>Troubleshoot:</b>						
<b>19.2.13.1.</b>	Brake assembly ♦	5	*				
<b>19.2.13.2.</b>	Hydraulic system ♦	5	*				
<b>19.2.13.3.</b>	Trailer hydraulic system♦	5	*				
<b>19.3.</b>	<b>Lightweight Fairlead Beam (LWFB)</b>						
<b>19.3.2.</b>	<b>Perform installation</b>						
<b>19.3.2.1.</b>	Concrete ♦	5	*				
<b>19.3.2.2.</b>	Soil ♦	5	*				
<b>19.4.</b>	<b>Mobile Runway Edge Sheaves (MRES)</b>						
<b>19.4.2.</b>	Perform concrete installation ♦	5	*				
<b>19.4.3.</b>	Perform soil installation ♦	5	*				