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**CFETP 3E5X1  
Part I and II  
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## **Air Force Specialty Code (AFSC) 3E5X1**

# **ENGINEERING**



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

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**CAREER FIELD EDUCATION AND TRAINING PLAN**

**AFSC 3E5X1**

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## PREFACE

1. This Career Field Education and Training Plan (CFETP) is a comprehensive education and training document that identifies life-cycle education/training requirements and training support resources for the engineering specialty. The CFETP will provide our personnel with a clear career path to success and instill rigor in all aspects of our career field training.

*Note: Civilian occupying associated positions may use Part II as a guide to support duty position qualification training.*

2. The CFETP consists of two parts used by the supervisor to plan, manage, and control training within the career field.

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

3.1. Section A provides general information about how the CFETP will be used..

3.2. Section B identifies career field progression information, duties and responsibilities, training strategies, and the career field path.

3.3. Section C associates each skill-level with specialty qualifications (knowledge, education, and training).

3.4. Section D displays resource constraints.

3.5. Section E identifies transition training guide requirements for SSgt through MSgt.

**4. Part II includes the following:**

4.1. 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.

4.2. Section B contains the course objective list and training standards supervisors will use to determine if an Airman has satisfied training requirements.

4.3. Section C identifies available support materials.

4.4. 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.

4.5. Section E identifies MAJCOM-unique training requirements supervisors can use to determine additional training required for the associated qualification needs.

4.6. Section F identifies home station training references and courses material required for this specialty in support of contingency/wartime training.

5. 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.

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

## ABBREVIATIONS/TERMS EXPLAINED

**Advanced Distributive Learning (ADL).** Anytime, anyplace learning within DoD consisting of instructional modules comprised of sharable content objectives in an Internet/Intranet environment.

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

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

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

**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 (FDM) are located at AFCEC.

**Air Force Credentialing Opportunities On-Line (AF COOL) Program.** AF COOL replaced the CCAF Credentialing and Education Research Tool (CERT). The AF COOL Program can be accessed at <https://afvec.langley.af.mil/afvec/Public/COOL/Default.aspx>. The site provides a research tool designed to increase an Airman's awareness of national professional credentialing and CCAF education opportunities available for all Air Force occupational specialties.

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

**Automated Training Record (ATR).** Electronic training database to document training. ATR is located at the Civil Engineer Virtual Learning Center (CE-VLC) (<https://afcec.adls.af.mil/>).

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

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

**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 and is designed to make career field training identifiable, to eliminate duplication, and to ensure this training is budget defensible.

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

**Civil Engineer Virtual Learning Center (CE-VLC).** Anytime, anyplace learning within the Civil Engineering Community consisting of instructional modules and skill-level awarding course material specific to the AFSC.

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

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

**Core Tasks (\*).** Mandatory tasks which the Air Force Career Field Manager (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 that have been identified by the work center 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 by the supervisor or work center.

**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 task's AFQTP is all that is required for upgrade and qualification training. Hands-on certification will be accomplished at the first opportunity when equipment is available.

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

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

**Enlisted Professional Military Education (EPME).** EPME is an Air Force time in service (TIS) based model. EPME requirements are developed in three phases. EPME ensures a target delivery of institutional competencies (ICs) throughout the Continuum of Learning across an enlisted airman's career.

**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 HQ AFCEC charged with the responsibility for overseeing all training and career field management aspects of a specific Air Force Civil Engineer specialty.

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

**Interservice Training Review Organization (ITRO)** Apprentice level training that is provided in a Joint Service setting.

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

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

**On-the-Job Training (OJT).** Hands-on, over-the-shoulder training conducted to certify personnel in both upgrade (skill-level award) and job qualification (duty position certification) training.

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

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

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

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

**Specialty Training.** 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 the Air Education and Training Command (AETC) and the user to show the overall training requirements for an AFS taught in the resident and nonresident courses.

**Specialty Training Requirements Team (STRT).** Subject Matter Experts from each MAJCOM conduct research prior to the Utilization and Training Workshop (U&TW), develops training, recommends delivery methods and determines if a full fledge U&TW is required. The team finalizes the CFETP, specialty description and develops a standard for all courses.

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

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

**Total Force.** All collective Air Force components (active duty, Reserve, Guard, and civilian elements) of the United States Air Force.

**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 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 and establish commitment and delivery dates in writing, document equipment availability dates and any problems and establish training delivery dates.

## 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** is the 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. For our career field, this training is provided by AETC at Sheppard AFB, TX.

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

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

A1.4. **Advanced Training.** A formal course for training personnel towards a technical or supervisory level in an AFS. Training is for selected career Airmen in the advanced technology of the AFSs. Graduates are not awarded a new AFSC.

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

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

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

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

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

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

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

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A2.1. AETC training personnel will develop/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 Air Force Civil Engineer Center Force Development Division (HQ AFCEC/COF) to develop acquisition strategies for obtaining resources needed to provide the identified training.

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

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

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

**A3. Coordination and Approval.** The AFCFM is the approval authority for the CFETP. MAJCOM representatives and AETC personnel will identify and coordinate on the career field training requirements. The AETC training manager for this specialty will initiate an annual review of this document by AETC and MFMs to ensure currency and accuracy. Using the list of courses in Part II, they will eliminate duplicate training.

## PART I

## SECTION B - CAREER FIELD PROGRESSION AND INFORMATION

**B1. Specialty Description.** Engineering Apprentice, Journeyman, Craftsman and Superintendent.

**B1.1. Specialty Summary.** Directs and performs civil engineering design, drafting, surveying, and contract inspection/surveillance to support Air Force facility construction and maintenance programs. Prepares manual and Computer Aided Design (CAD) drawings, Building Information Modeling (BIM) solutions, construction contract specifications, and cost estimates. Operates and maintains Geographic Information Systems (GIS). Utilizes surveying technology to include Global Positioning System (GPS). Evaluates potential construction sites and performs field tests on soils, asphalt, and concrete. Related DoD Occupational Subgroup: 141200.

**B1.2. Duties and Responsibilities for Apprentice, Journeyman, Craftsman and Superintendent.**

**B1.2.1.** Performs drafting duties. Interpret rough engineering sketches to produce working drawings using CAD/BIM techniques. Produce architectural, structural, civil, mechanical, and electrical drawings. Update Base Comprehensive Plans (BCP) and maintain record drawings. Plot and reproduce drawings.

**B1.2.2.** Performs surveying duties. Conduct reconnaissance, site location, construction, and mapping surveys. Utilize auto-levels, electronic total stations, resource and survey grade GPS equipment and related instruments to complete surveys. Collect, convert and present field survey data for civil engineering projects.

**B1.2.3.** Performs Geographic Information Systems (GIS) duties. Produce installation maps using a GIS interface. Create and maintain spatial, tabular and metadata to national standards. Combine disparate datasets from various organizations, with various projections and precisions. Query and analyze geospatial data for end-user applications.

**B1.2.4.** Performs contract management duties. Manage and inspect construction and maintenance contracts. Interpret plans, specifications, and other contract documents. Coordinate, evaluate, monitor, and document contract activities and progress. Prepare recommendations for contract modifications. Review material submittals and evaluate procedures for compliance with contract specifications. Conduct pre-final, acceptance, and post acceptance inspections.

**B1.2.5.** Develop preliminary engineering designs. Prepare cost estimates, performance work statements and specifications for existing and proposed facilities. Perform/understand simple load calculations for horizontal and vertical construction. Act as liaison between design, review, construction and using agencies.

**B1.2.6.** Perform standardized and expedient tests on soils, asphalt, and concrete. Collect, record, and interpret test data. Prepare reports for engineering evaluation.

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**B1.2.7.** Support contingency operations. Develop plans to bed-down personnel, aircraft, and associated support functions during contingency operations. Evaluate existing airfield pavements, lighting, navigational aids, markings, and arresting systems. Perform recovery operations to include explosive ordnance reconnaissance, airfield damage assessment, minimum operating strip selection, airfield damage repair calculations, and airfield marking procedures.

**B12.8.** Advises on problems associated with civil engineering design, drafting, surveying, and contract surveillance and facility construction and maintenance programs. Manages, inspects, and evaluates work center activities. Ensures compliance with commercial and military publications. Submits and reviews supply and equipment requisitions. Discusses inspection findings and recommends corrective actions. Solves complex problems by studying layout drawings, wiring and schematic drawings, and by analyzing construction and operating characteristics. Develops and establishes operation and maintenance procedures to ensure maximum efficiency. Plans and organizes all Engineering Airmen's activities, training and work. Performs work center planning activities. Coordinates plans with other civil engineering and base activities. Directs all daily activities and supervisory functions in assigned sections. Analyzes productivity and work quality.

**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 3E531 – AB, AMN, AIC).**

**B2.1.1.** On 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.** Use CDC, 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.

**NOTE:** All trainees are automatically enrolled in the Community College of the Air Force (CCAF) when awarded their primary AFSC.

**B2.2. Journeyman (AFSC 3E551 – SrA, SSgt).**

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

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**B2.2.2.** Complete mandatory Civil Engineer (CE) 5-Level Core Concepts Course Distance Learning (DL) product located on the [CE-VLC](#) prior to ordering their Career Development Courses (CDCs).

**B2.2.3.** Completion of 5-level CDC's, 100% of 5-level core/diamond tasks are basic prerequisites for five skill level award.

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

**B2.2.5.** Active duty Airmen must attend the Phase 1 Resident Airman Leadership School (ALS) between 3 to 6 year time in service (TIS) window. Air Reserve Component (ARC) Airmen may accomplish ALS by using distance learning (DL) and/or the resident or satellite program. Airmen must complete Phase 1 to be eligible to enroll in Phase 2 Enlisted Professional Military Education (EPME) DL.

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

**B2.2.7.** Use CDCs and other references identified by the AFCFM to prepare for Weighted Airman Performance System (WAPS) testing.

**B2.2.8.** Continue pursuing a Community College of the Air Force (CCAF) degree.

**B2.2.9.** When upgrade training requirements are completed, supervisors and UTMs coordinate upgrade procedures.

**B2.3. Craftsman (AFSC 3E571 – SSgt, TSgt, and MSgt).**

**B2.3.1.** 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 the [CE-VLC](#), 7-level Craftsman Course and 100% of core/diamond tasks are basic prerequisites for seven skill level award.

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

**B2.3.4.** SSgts and TSgts (depending on TIS) must complete Phase 2 Enlisted Professional Military Education (EPME). All active duty and AFRC personnel must enroll within their TIS window.

**B2.3.5.** TSgts and MSgts (depending on TIS) must complete Phase 3 EPME DL. All active duty and ARC personnel must enroll within the TIS window.

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**B2.3.6.** Should take continuation training courses to broaden technical knowledge or management of resources and personnel.

**B2.3.7.** Use CDCs and other reference material to prepare for Weighted Airman Performance Systems (WAPS) testing.

**B2.3.8.** Continue academic education through CCAF and higher degree programs is encouraged.

**B2.3.9.** When training requirements are completed, supervisors and UTMs coordinate upgrade procedures.

**B2.4. Superintendent. (AFSC 3E591 - SMSgt)**

**B2.4.1.** A Superintendent can be expected to fill positions such as flight chief, section chief, superintendent, and various staff positions.

**B2.4.2.** Completion of Civil Engineer Superintendent Course (AFIT WMGT 570) is mandatory for Active Duty and Air Force Reserve SMSgt's. 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 Phase 3 EPME DL before their 18<sup>th</sup> year TIS. All active duty and ARC personnel must enroll within their TIS window.

**B2.4.3.1.** Active duty Airmen failing to enroll, complete and pass EPME Phase 3 within one (1) year of enrollment renders Airmen ineligible to reenlist or compete for promotion until the requirement is met. ARC determines the consequence of their personnel failing to complete the required EPME Phase 3 DL within established timeframe.

**B2.4.3.2.** ARC Airmen must complete Phase 3 EPME SNCOA DL Course 14 between the 12 to 18 years TIS window. ARC determines the consequences for their Airmen for failure to complete required EPME Phase 3 DL within the established timeframe.

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

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

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

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

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

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

**B2.5.3.** AFRC CMSgt selects must attend the Reserve component Chief Orientation Course (COC) prior to assuming the higher grade.

**B3. Training Decisions.** The CFETP uses a building block approach (simple to complex) to encompass the entire spectrum of training requirements for the Engineering 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 22 Apr – 21 May 2013. STRT minutes are available on the AF Civil Engineer Force Development Sharepoint <https://cs3.eis.af.mil/sites/OO-EN-CE-A6/24048/default.aspx> located in 3E5X1/Administrative/2013STRT/ folder.

**B3.1. Initial Skills Training.** The initial skill course was reviewed for content. Additions, deletions, and modifications were made to the course. The War mobilization Plan and wartime training tasks were identified and validated.

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

**B3.3. Seven Level Upgrade Training Requirements.** Seven-level training requirements were reviewed and modified. Existing CDCs were reviewed and updated to ensure they are relevant; however, due to operational requirements/needs, existing 7-level CDC material will now be introduced at the 5-level in a “B” set.

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

**B3.5. Supplemental Training.** Subject Matter Experts (SME) and the Training Committee reviewed supplemental training courses for technical accuracy and identified training that was no longer required or otherwise outdated. They revalidated the remaining courses as necessary to fully support doctrine, the War Mobilization Plan (WMP), the AF Enlisted Classification Directory, and an Airman’s individual career progression in the AFS.

**B4. Community College of the Air Force (CCAF) Academic Programs.** CCAF is one of several federally chartered degree-granting institutions; however, it’s the only 2-year institution exclusively serving military enlisted personnel. The college is regionally accredited through Air University by the Southern Association of Colleges and Schools Commission on Colleges (SACSCOC) to award Associate of Applied Science (AAS) degrees designed for specific Air

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Force occupational specialties and is the largest multi-campus community college in the world. Upon completion of basic military training and assignment to an AF career field, all enlisted personnel are registered in a CCAF degree program and are afforded the opportunity to obtain an AAS degree. In order to be awarded, degree requirements must be successfully completed before the Airman separates/retires from the Air Force or is commissioned as an officer. See the CCAF website for details regarding the AAS degree programs: <http://www.au.af.mil/au/barnes/ccaf/>. In addition to its Associates degree program, CCAF offers the following programs. Complete details can be found at <http://www.au.af.mil/au/barnes/ccaf/certifications.asp>.

**B4.1. CCAF Instructor Certification (CIC) Program.** CIC is a program for qualified instructors who teach CCAF collegiate-level credit awarding courses at a CCAF affiliated school. The CIC is a professional credential that recognizes the instructor's extensive faculty development training, education and qualification required to teach a CCAF course, and formally acknowledges the instructor's practical teaching experience.

**B4.2. The Professional Manager Certification (PMC).** This professional credential is awarded by CCAF and formally recognizes an individual's advanced level of education and experience in leadership and management, as well as professional accomplishments. The PMC is primarily designed for Air Force SNCO's. However, any enlisted Airmen who meet all program requirements may be nominated and awarded the PMC. Once an individual retires, separates or is commissioned, they are no longer eligible for the PMC. Complete details can be found at <http://www.au.af.mil/au/barnes/ccaf/certifications.asp>.

**B4.2. CCAF Instructional Systems Development (ISD) Certification Program.** This program is for qualified course/curriculum developers, writers and managers who are formally assigned to affiliated schools 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 extensive training, education, qualifications and experience required to develop/write and manage CCAF courses. The certification also recognizes the individual's ISD qualifications and experience in planning, developing, implementing and managing instructional systems. The program is designed to broaden faculty and professional development. Qualified officer, enlisted, civilian and other service curriculum writers and managers are eligible. Once an individual leaves curriculum writer or manager duty, they are no longer eligible for the ISD Certification.

**B4.3. 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.

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**B4.4. Air Force Credentialing Opportunities On-Line (AF COOL) Program.** AF COOL replaced the CCAF Credentialing and Education Research Tool (CERT). The AF COOL Program can be accessed at <https://afvec.langley.af.mil/afvec/Public/COOL/Default.aspx>. 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. The AF COOL Program also provides information on specific occupational specialties, civilian occupational equivalencies, CCAF degree programs, and AFSC-related national professional credentials available to enlisted members through credentialing agencies and professional organizations. The AF COOL Program contains a variety of information about credentialing and licensing and can be used to:

**B4.4.1.** Get background information about civilian licensure and certification in general and specific information on individual credentials including eligibility requirements and resources to prepare for an examination.

**B4.4.2.** Identify licenses and certifications relevant to an AFSC.

**B4.4.3.** Learn how to fill gaps between Air Force training and experience and civilian credentialing requirements.

**B4.4.4.** Get information on Tuition Assistance and GI Bill eligible funding opportunities to pay for credentialing examinations and associated fees.

**B4.4.5.** Learn about resources available to you that can help gain civilian job credentials.

**B4.5. Air University Associate to Baccalaureate Cooperative (AU-ABC).** AU-ABC directs Airmen with associate in applied science degrees from the CCAF to a collection of accredited “military friendly” colleges and universities to consider when completing a four-year degree. The program maximizes the application of military career education and training, and provides a multitude of online academic and support services for the enlisted member.

**B5. CCAF Degree Completion Requirements (64 Semester Hours).** The Construction Technology Degree (4VEB) applies to the 3E5X1 AFSC. Prior to completing an AAS degree, the individual must be awarded a 5-level and the following requirements must be met:

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<u>Course</u>	<u>Semester Hours</u>
Technical Education	24
Leadership, Management, and Military Studies	6
Physical Education	4
General Education	<b>15</b>
Oral Communication	3
Written Communication	3
Mathematics	3
Social Science	3
Humanities	3
Program Elective	15
Technical Education; Leadership, Management, and Military Studies or General Education	
<b>Total</b>	<b>64</b>

**B5.1. Technical Education (12 - 24 semester hours).** A minimum of 12 semester hours of technical core subjects or courses must be applied and the remaining semester hours applied from technical core or technical elective subjects or courses. Requests to substitute comparable courses or to exceed specified semester hour values in any subject or course must be approved in advance.

<u>Technical Core Requirements</u>	<u>Semester Hours</u>
Building Construction and Design	20
Carpentry/Cabinetry	12
CCAF Internship.	18
College Algebra/Trigonometry	3
Computer Aided Drafting.	3
Construction Inspection/Building Codes	9
Drafting/Engineering Drawing	6
Engineering Assistant	20
Engineering Operations and Management	3
Heavy Equipment Operations	20
Metals Fabrication/Characteristics	15
Pavement Construction	12
Project Management/Planning	4
Surveying	12
Welding	9

**B5.2. Technical Electives (0-12 Semester Hours).**

<u>Technical Electives</u>	<u>Semester Hours</u>
Blueprint Reading	3
Computer Science	6
Construction Material Estimating	3
General Physics	3
Hazardous Materials	3
Industrial/Construction Safety	3
Properties and Strength of Materials	6
Soil and Foundations	3

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Technical Writing

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.

**B5.3. Physical Education** (4 Semester Hours): This requirement is satisfied by completion of Basic Military Training.

**B5.4. General Education** (15 Semester Hours): Applicable courses must meet the criteria for application of courses to the general education requirements and be in agreement with the definitions of applicable general education subjects/courses as provided in the *CCAF General Catalog*.

<u>General Education Subjects/Courses</u>	<u>Semester Hours</u>
Oral Communication	3
Speech	
Written Communication	3
English Composition	
Mathematics	3
Intermediate algebra or a college-level mathematics course satisfying delivering institution's 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 or through Defense Language Proficiency Test; maximum 9 semester hours of CCAF degree-applicable technical course credit otherwise not applicable to program of enrollment.

**B5.6.** Additional off-duty education is a personal choice that is encouraged for all. Individuals desiring to become an AETC Instructor should be actively pursuing an associate degree. A degreed faculty is necessary to maintain accreditation through the Southern Association of Colleges and Schools.

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**B6. Civil Engineer Career Field Path.** The following chart depicts the 3E5X1 specialty's career path:



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## B7. Enlisted Training Path.

Education and Training Requirements	Grade Requirements			
	Rank	Average Sew-On	Earliest Sew-On	High Year Of Tenure (HYT)
<b>Basic Military Training School</b>				
<b>Upgrade To Apprentice</b> (3-Skill Level) - Complete Technical School	Amn A1C	6 months 16 months		
<b>Upgrade To Journeyman</b> (5-Skill Level) - Complete 5-level CDC - Complete all core and duty related tasks identified in CFETP - Minimum 12 months OJT (9 months for retrainees) - Complete appropriate certification course(s) when available - Complete CE 5-Level Core Concept Course on <a href="#">CE-VLC</a>	SrA	3 years	28 months BTZ (22 Months)	8 years
<b>Trainer</b> - Must be qualified and certified to perform task(s) to be trained - Must attend formal AF Training Course - Recommended by the supervisor				
<b>Upgrade To Craftsman</b> (7-Skill Level) - Minimum rank of SSgt - Complete CE 7-Level Core Concept Course on <a href="#">CE-VLC</a> - Complete all core/duty related tasks in CFETP - Complete appropriate certification course(s) when available - Complete in-resident craftsman course, when applicable - Minimum 12 months OJT - 6 months OJT for retrainees	SSgt	5 years	3 years	15 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 except for AFSCs, duty positions, units, and/or work centers with specialized training standardization and certification requirements				
<b>Upgrade To Superintendent</b> (9-Skill Level) - Minimum rank of SMSgt - CE Superintendents Course (WMGT570) (AD/AFR Only, not skill level awarding)	SMSgt	20 years	11 years	26 years
<b>Civil Engineer Manager (CEM)</b> - Chief Orientation Course (AFRC Only) - CE Superintendents Course (WMGT570) (ANG Only)	CMSgt	22 years	14 years	30 years

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## B7.1. 3E5X1 Supplemental Course Career Path

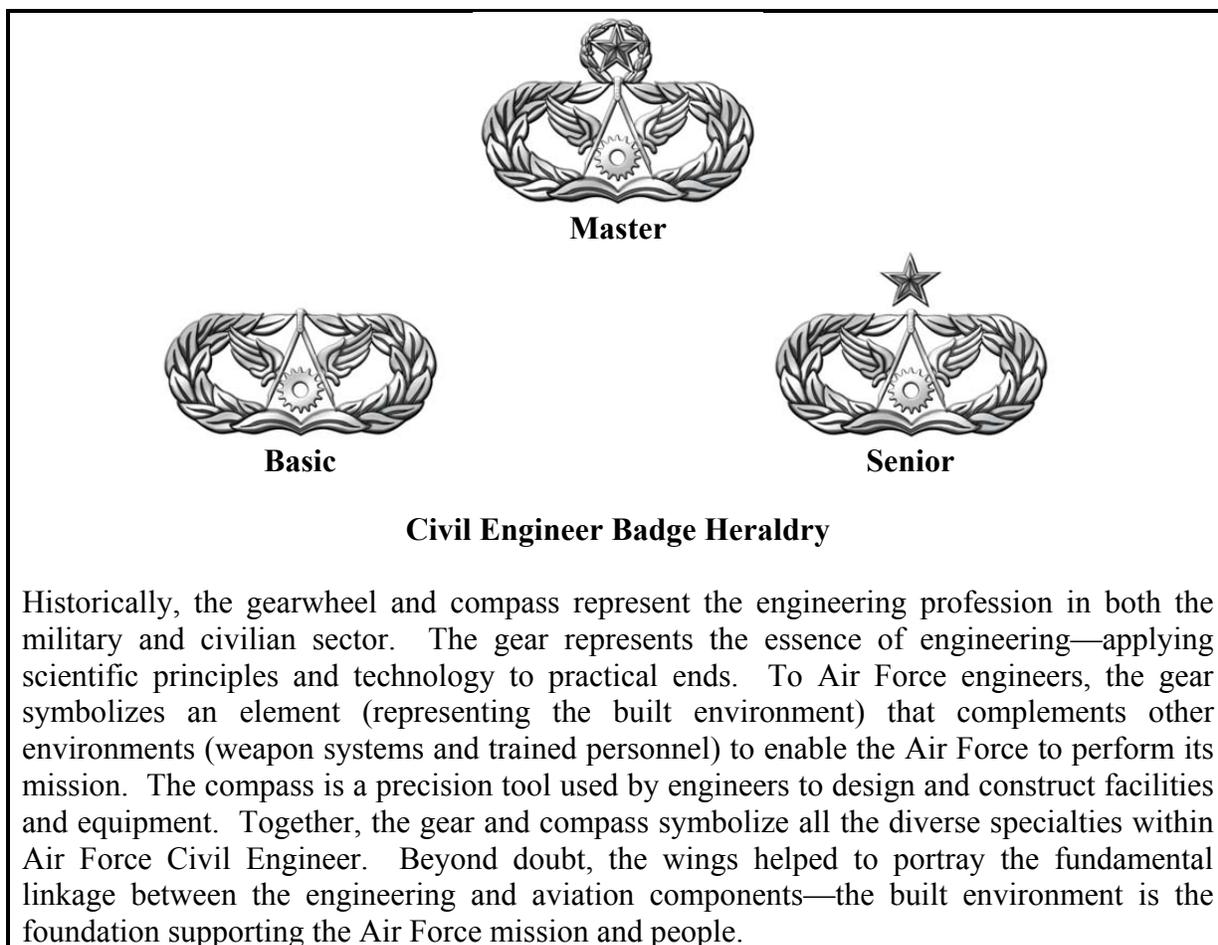
Supplemental Courses	Timeline	
	Rank	Desired timeframe years of service
Engineering Craftsman	SSgt	4 – 7 years
Advanced GIS	SSgt - TSgt	5 – 14 years (SrA may attend JIT for contingency requirements; MSgt may attend if performing GIO duties on MAJCOM staff or based on contingency tasking)
Construction Surveying	SSgt - TSgt	5 – 14 years (5-level SrA may attend JIT for contingency requirements)
Contract Construction Inspector	SrA and above	3– 14 years (A1C may attend JIT for contingency requirements)

## B7.2. Recommended Certification Programs

Course Titles
Certified Survey Technician, National Society of Professional Surveyors (NSPS)
Certified Construction Manager, Construction Management Association of America (CMAA)
Construction Manager Certification, The American Institute of Constructors (AIC)
Construction and Building Inspector Certification (Commercial/Residential), Plans Examiner Certification, International Code Council (ICC)
Concrete/Aggregate Field/Laboratory Technician, American Concrete Institute (ACI)
Construction Materials Testing Certification, National Institute for Certification in Engineering Technologies (NICET)
Geographic Information System Professional (GISP), Geographic Information System Certification Institute (GISCI)
Autodesk Certification (Autodesk University)

**B7.3. CE Occupational Badge.** The Civil Engineer badge reflects a great history and tradition. By wearing it, you will be recognized by your fellow airmen as having achieved an expected level of competence. The multitude of engineers before you established this expectation through excellent service in both peace and war. Eligibility criteria for award and wear of AF occupational badges can be found in AFI 36-2923 *Aeronautical, Duty, and Occupational Badges*.

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Historically, the gearwheel and compass represent the engineering profession in both the military and civilian sector. The gear represents the essence of engineering—applying scientific principles and technology to practical ends. To Air Force engineers, the gear symbolizes an element (representing the built environment) that complements other environments (weapon systems and trained personnel) to enable the Air Force to perform its mission. The compass is a precision tool used by engineers to design and construct facilities and equipment. Together, the gear and compass symbolize all the diverse specialties within Air Force Civil Engineer. Beyond doubt, the wings helped to portray the fundamental linkage between the engineering and aviation components—the built environment is the foundation supporting the Air Force mission and people.

#### **B7.4. Civil Engineer Occupational Badge Wear Criteria.**

**B7.4.1. Basic Badge.** Awarded upon successful completion of the Engineering Apprenticeship Course, Fort Leonard Wood, Missouri.

**B7.4.2. Senior Badge.** Adds a star above the basic badge and award is after the member successfully completes all 7-skill level requirements.

**B7.4.3. Master Badge.** Adds a wreath around the star and award is to master sergeant or above with 5 years in the specialty from award of the 7-skill level.

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

**B8.1. Basic EPME (Distance Learning).** Air Force EPME is a time-in-service (TIS)-based model that ensures targeted delivery of institutional competencies (ICs) throughout the Continuum of Learning across an enlisted Airman's career through distance learning. Basic EPME Requirements will be developed in three phases across an Airman's career. Refer to AFI 36-2301, *Developmental Education*, for the most current guidance and TIS requirements.

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B8.1.1. Phase 1. Phase 1 is the resident Airman Leadership School (ALS), which meets all EPME requirements (basic and comprehensive). RegAF Airmen must complete and pass Phase 1 to be eligible to enroll in Phase 2 EPME. Air Reserve Component (ARC) Airmen may accomplish ALS via DL and/or via the resident or satellite program.

B8.1.2. Phase 2. Phase 2 (Course 15) meets the basic requirements for NCOs. All RegAF and ARC Airmen must enroll within the TIS window. Failure to enroll, complete, and pass Phase 2 within one year of enrollment renders Airmen ineligible to reenlist and compete for promotion until this requirement is met. The ARC will determine the consequences for failure to complete required Phase 2 within established timeframes.

B8.1.3. Phase 3. Phase 3 (Course 14, Version 6) meets the basic requirements for SNCOs. RegAF Airmen must complete and pass Phase 2 to be eligible to enroll in Phase 3. See promotion policy for guidance related to course completion and senior rater endorsement.

**B8.2. Comprehensive EPME (In-residence).** The comprehensive learning experience EPME are in-residence courses that builds upon the Basic EPME requirements to achieve higher proficiency levels and is delivered in three phases. Refer to AFI 36-2301, *Developmental Education*, for the most current guidance and TIS requirements.

B8.2.1. Phase 1 EPME. The ALS resident program delivers both basic and comprehensive learning requirements. The ALS DL course is available for ARC Airmen and meets all basic requirements.

B8.2.2. Phase 2 EPME NCOA Intermediate Learning Experience (ILE) is a resident opportunity that delivers comprehensive learning requirements. This opportunity is available to Airmen, who meet minimum requirements.

B8.2.3. Phase 3 EPME SNCOA Advanced Learning Experience (ALE) is the advanced resident opportunity that delivers comprehensive learning requirements. This opportunity is available to Airmen; who meet minimum requirements.

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## SECTION C – SKILL LEVEL TRAINING REQUIREMENTS

**C1. Purpose.** The various skill levels in this career field are defined in terms of tasks and knowledge requirements for the AFS career ladder. They are stated in broad, general terms and establish the standards of performance. An all-encompassing core and diamond tasks list has been developed for this specialty because of the diversity of the missions supported and the equipment assigned to meet mission requirements. Core and diamond tasks, knowledge items, and skill requirements are identified in the STS. Completion of the mandatory 3-skill level awarding course, core concept courses, CDCs and AFQTPs comprise Air Force requirements.

**C2. Skill Level Training Requirements.****C2.1. Apprentice (3-Level) Training Requirements. (3E531)**

<b>KNOWLEDGE</b>	Knowledge is mandatory of computer operations (literacy), and mathematics including algebra, geometry and trigonometry. Completion of the technical training apprentice course and CE 5-Level Core Concept distance learning course satisfies the remainder of this requirement.
<b>EDUCATION</b>	Completion of high school or General Education Development (GED) is mandatory for entry into this AFS. Courses in algebra, geometry, trigonometry, and computer operations (literacy) is mandatory. Courses in drafting and software applications is desirable.
<b>TRAINING</b>	Completion of the 3E531 Engineering Apprentice courses, J9AQ3E531 00RD and JCABP3E531 00AD, is mandatory for award of this skill level. (See Part II, Section B for Course Objective List)
<b>EXPERIENCE</b>	None required.
<b>OTHER</b>	For entry, award and retention of AFSC 3E531, must possess a valid state driver's license to operate government motor vehicles (GMV) in accordance with AFI 24-301, <i>Vehicle Operations</i> .  Normal color vision as defined in AFI 48-123, <i>Medical Examinations and Standards</i> .  Must maintain local network access IAW AFMANs 33-152, <i>User Responsibilities and Guidance for Information Systems</i> and 33-282, <i>Computer Security</i> .
<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.

\*Refer to [Air Force Enlisted Classification Directory \(AFECD\)](#) attachment 4 for most current requirements.

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## C2.2. Journeyman (5-Level) Training Qualifications. (3E551)

<b>KNOWLEDGE</b>	All 3E531 Knowledge Qualification apply to the 3E551 requirements.
<b>TRAINING</b>	<p>Completion of CE 5-Level Core Concept web-based course located on the <a href="#">CE-VLC</a> is mandatory.</p> <p>Completion of all 5-level requirements outlined in the 3E5X1 Engineering CFETP.</p> <p>The following course is desirable and strongly encouraged upon upgrade to 5-skill level:</p> <p>Completion of the Contract Construction Inspector (MTT) course if assigned (or pending assignment) to construction management. Recommended attendance between 3-14 years time in service.</p>
<b>EXPERIENCE</b>	<p>Qualification in and possession of AFSC 3E531.</p> <p>Experience in functions such as drafting, surveying, GIS, and contingency operations.</p> <p>Completion of all the paper-based AFQTPs and their associated web-based courses on the <a href="#">CE VLC</a>.</p> <p>Completion of all 5-skill level core and diamond tasks.</p> <p>Completion of duty position requirements identified by the supervisor.</p>
<b>OTHER</b>	<p>For entry, award and retention of AFSC 3E551, must possess a valid state driver's 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 AFI 48-123, <i>Medical Examinations and Standards</i>.</p> <p>Must maintain local network access IAW AFMANs 33-152, <i>User Responsibilities and Guidance for Information Systems</i> and 33-282, <i>Computer Security</i>.</p>
<b>IMPLEMENTATION</b>	Entry into 5-level upgrade training is initiated after the individual has completed all 3-level requirements. Qualification training is initiated any time individuals are assigned duties they are not certified to perform. Use OJT, CDCs, AFJQs, and AFQTPs concurrently to obtain the necessary qualifications.

\*Refer to [Air Force Enlisted Classification Directory \(AFECD\)](#) attachment 4 for most current requirements.

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## C2.3. Craftsman (7-Level) Training Requirements. (3E571)

<b>KNOWLEDGE</b>	All 3E551 Knowledge Qualification apply to the 3E571 requirements.
<b>TRAINING</b>	<p>Completion of CE 7-Level Core Concept web-based course located on the <a href="#">CE-VLC</a> is mandatory.</p> <p>Completion of all 7-level requirements outline in the 3E5X1 Engineering CFETP.</p> <p>Completion of 3E571 Craftsman Course.</p> <p>Below courses are desirable and strongly encouraged upon upgrade to 7-skill level:</p> <p>Contract Construction Inspector (MTT) course if assigned (or pending assignment) to construction management. Recommended attendance between 3-14 years time in service.</p> <p>Construction Surveying course instructed at Fort Leonard Wood, MO. Recommended attendance between 5-14 years time in service.</p> <p>Advanced Geographic Information System course. Recommended attendance between 5-14 years time in service.</p>
<b>EXPERIENCE</b>	<p>Qualification in and possession of AFSC 3E551.</p> <p>Performing or supervising functions such as engineering design, surveying, material testing, GIS, CAD, contract management, and contingency operations.</p> <p>Completion of all the paper-based AFQTPs and their associated web-based courses on the <a href="#">CE VLC</a>.</p> <p>Completion of all 5 and 7-skill level core and diamond tasks.</p> <p>Completion of duty position requirements identified by the supervisor.</p>
<b>OTHER</b>	<p>For entry, award and retention of AFSC 3E571, must possess a valid state driver's 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 AFI 48-123, <i>Medical Examinations and Standards</i>.</p> <p>Must maintain local network access IAW AFMANs 33-152, <i>User Responsibilities and Guidance for Information Systems</i> and 33-282, <i>Computer Security</i>.</p>
<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, AFJQs, and AFQTPs concurrently to obtain the necessary qualifications.

\*Refer to [Air Force Enlisted Classification Directory \(AFECD\)](#) attachment 4 for most current requirements.

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## C2.4. Superintendent (9-Level) Training Requirements. (3E591)

<b>KNOWLEDGE</b>	Knowledge is mandatory of Air Force training programs. CE policies, practices, and procedures of base maintenance and operations, crafts, facilities, equipment, and systems. Interpretations and applications of maintenance and work force management. General construction, and repair methods and procedures, including use and capacity of construction equipment.
<b>TRAINING</b>	Completion of Civil Engineer Superintendent Course (AFIT WMGT 570) is mandatory for Active Duty and Air Force Reserve SMSgt's. This course is highly encouraged for Air National Guard SMSgts and mandatory to be promoted to CMSgt. <b>NOTE:</b> This is not a skill level awarding course.
<b>EXPERIENCE</b>	Qualification in and possession of 7-skill level is mandatory. Minimum rank of SMSgt with experience directing functions such engineering design, surveying, material testing, GIS, CAD, contract management, and contingency operations.
<b>OTHER</b>	For entry, award and retention of AFSC 3E571, must possess a valid state driver's license to operate government motor vehicles (GMV) in accordance with AFI 24-301, <i>Vehicle Operations</i> .  Normal color vision as defined in AFI 48-123, <i>Medical Examinations and Standards</i> .  Must maintain local network access IAW AFMANs 33-152, <i>User Responsibilities and Guidance for Information Systems</i> and 33-282, <i>Computer Security</i> .
<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. Use OJT, AFJQS' and AFQTPs concurrently to obtain the necessary qualifications.

\*Refer to [Air Force Enlisted Classification Directory \(AFECD\)](#) attachment 4 for most current requirements.

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

<b>KNOWLEDGE</b>	Knowledge is mandatory of Air Force training programs. CE policies, practices, and procedures of base maintenance and operations, crafts, facilities, equipment, and systems. Interpretations and applications of maintenance and work force management. General construction, and repair methods and procedures, including use and capacity of construction equipment.
<b>TRAINING</b>	Reserve Component Chief Orientation Course (AFRC only).
<b>EXPERIENCE</b>	Possess qualifications in feeder specialty (3E591) prior to award of Civil Engineer Manger code 3E000. Managerial ability to plan, direct, coordinate, implement, and control a wide range of work activity.
<b>OTHER</b>	NA
<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).

\*Refer to [Air Force Enlisted Classification Directory \(AFECD\)](#) attachment 4 for most current requirements.

**C3. Training Sources and Resources.**

**C3.1.** AFSC specific training 364 TRS, Fort Leonard Wood, MO.

**C3.2.** CDC 3E551, Engineering Journeyman is available for upgrade training through the unit training manager.

**C3.3.** CE 5-Level Core Concept Course on the [CE-VLC](#).

**C3.4.** CE 7-Level Core Concept Course on the [CE-VLC](#).

**C3.5.** Paper-based AFQTPs and their associated web-based courses on the [CE-VLC](#).

**C3.6.** Qualified trainers provide upgrade and qualification training for duty position, managed programs, and/or equipment to be used.

**C3.7.** Air Force Institute of Technology (AFIT) Training Courses conducted at [The Civil Engineer School](#) Wright-Patterson AFB, OH.

**C3.7.1.** WENG 520, Comprehensive Planning Development. (Web-portion)

**C3.7.2.** WENG 555, Airfield Pavement Construction Inspection.

**C3.7.3.** WMGT 422, Project Management Course.

**C3.7.4.** WMGT 423, Project Programming.

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**C3.7.5.** WMGT 426, SABER Management Course.

**C3.7.6.** Construction Cost Estimating Principles Course, located on the [CE-VLC](#).

**C3.7.7.** WMGT 570, Civil Engineer Superintendent Course.

**C3.7.8.** WMGT 422, Project Management.

**C3.7.9.** WMGT 436, Operations Support.

**C3.7.10.** WMGT 571, Civil Engineer Civilian Supervisor Course (Civilian only).

**NOTE:** These and other AFIT funded skill progression courses can be found at:  
<http://www.afit.edu/cess/index.cfm>

**C3.8.** Chief Leadership Course conducted at Maxwell AFB - Gunter Annex AL.

## PART I

## SECTION D – RESOURCE CONSTRAINTS

**D1. Purpose.** This section identifies known resource constraints, which preclude optimal and desired training from being developed or conducted, including information such as cost and manpower. Narrative explanations of each resource constraint and an impact statement describing 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. Constraints:**

**D2.1.** Equipment Constraints. None

**D2.2.** Time/Manpower/Student Man-years Constraints. None

**D3. Apprentice (3-Level) Training:**

**D3.1.** Constraints. None

**D3.1.1.** Impact. None

**D3.1.2.** Resources Required. None

**D3.1.3.** Action Required. None

**D3.2.** OPR/Target Completion Date. NA

**D4. Journeyman (5-Level) Training:**

**D4.1.** Constraints. None

**D4.1.1.** Impact. None

**D4.1.2.** Resources Required. None

**D4.1.3.** Action Required. None

**D4.2.** OPR/Target Completion Date. NA

**D5. Craftsman (7-Level) Training:**

**D5.1.** Constraints. None

**D5.1.1.** Impact. None

**D5.1.2.** Resources Required. None

**D5.1.3.** Action Required. None

**D5.2.** OPR/Target Completion Date. NA

**D6. Superintendent (9-Level) Training. None**

**D6.1.** Constraints. None

**D6.1.1.** Impact. None

**D6.1.2.** Resources Required. None

**D6.1.3.** Action Required. None

**D6.2.** OPR/Target Completion Date. NA

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**SECTION E – TRANSITIONAL TRAINING GUIDE**

**“There are currently no transition training requirements for the Engineering 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 3-level Engineering Apprentice two course pipeline with the Army ITRO J9AQA3E531 00RD class beginning 16 November 2015 and graduating on or after 12 February 2016 followed by the AF Unique course JCABP3E531 00AD class beginning 16 February 2016 and graduating on or after 11 March 2016.

**A2. Purpose.** As prescribed in AFI 36-2201, this STS, *Air Force Training Program*, and in collaboration with the Civil Engineer, Air Force Career Field Manager (AFCFM), it is mandatory for all civil engineers, regardless of duty assignment, to use an automated training record. The automated training record currently being utilized to document upgrade and qualification training is an application located on the [Civil Engineer Virtual Learning Center \(CE-VLC\)](#).

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

**A2.2. Column 2 (Core Tasks).** Identifies core tasks (specialty-wide training requirements) by an asterisk (\*) in the appropriate skill level sub-column. *As a minimum, trainees must complete hands-on certification on all core, critical and diamond tasks for skill level upgrade.*

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

**A2.2.2. Diamond Tasks.** Tasks identified by a diamond (◆) are considered contingency/war task and are critical to the career field. Equipment shortfalls at most locations have created problems with actual hands-on certification of these tasks. In instances where required equipment is not available for instruction, completion of the corresponding task Air Force Qualification Training Package (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 the automated training record application to document individual qualifications. **Task certification of core, critical and diamond tasks** require a training completion date and initials of the trainee, trainer, and certifier. All non-core tasks require training completion date and initials of the trainee and trainer only.

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

## PART II

**A2.5. Attachment 1 (Qualitative Requirements).** Contains the proficiency code key used to indicate the level of training and knowledge provided by WBT, resident training and career development courses.

**A2.6. Job Qualification Standard (JQS).** The STS becomes the JQS for OJT when placed in automated training application and used according to AFI 36-2201. For OJT, the tasks in Column 1 are trained and qualified to the go/no go level. “Go” means the individual can perform the task without assistance and meets local requirements for accuracy, timeliness, and correct use of procedures (“Go” level equates to 3c in the STS proficiency code key). AFQTPs, when available, shall be used to identify Air Force standardized procedures. When used as a JQS, the following requirements apply:

**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 workcenter supervisor and loaded into the automated training application. Completion of core, critical and diamond tasks are mandatory for all duty positions. Ensure the correct duty position title is listed under Profile 1 section of the trainees’ automated training record.

**A2.6.1.2. AFQTP Training and Documentation.** AFQTP or AFQTP assessments have been created for all core (\*) and diamond (♦) tasks. Completion is mandatory to fulfill task knowledge requirements for upgrade/qualification training. Each AFQTP provides step-by-step procedures for the trainee, trainer, and certifier in completing each core or diamond task and instructions how to document the training in the 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 and diamond tasks. The automated training record will not allow you to sign off any tasks in the JQS until the completion date has been entered. Diamond tasks require the completion of the web-based course (with the review and post-test located in the program) or completion of the AFQTP assessment located on the [CE-VLC](#) to determine if the trainee has attained the knowledge level required. Once the trainee has completed the web-based course or AFQTP assessment, the course completion certificate must be provided to the trainer/supervisor for documentation of the completion in the automated training record and completion of hands-on training, if the equipment is available.

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

## PART II

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

**A2.6.2.1. Previous training certification not listed** If previous training certification is not listed in the individual record, select the parent task to be transcribed, check the task title(s) block, and click on the transcribe button. Enter the date of the original certification and sign off the task(s). The trainee will then sign off the task(s) to finalize the transcription of previous training certification. The automated application will place an entry into the trainee 623a and must be acknowledged by the transcriber and trainee.

**A2.6.2.2. Transcribing external training certification.** If a trainee attended a formal training course and received appropriate accreditation, select the 623 III of the user in automated training record and locate the course title in the master catalog, then enter the completion date. If the course title is not listed, contact the Force Development Manager at AFCEC to have it loaded in the master catalog.

**A2.6.3. Documenting Career Knowledge.** When a CDC is not available, the supervisor identifies STS training references that the trainee requires for career knowledge IAW AFI 36-2201, *Air Force Training Program* and ensures, as a minimum, that trainees cover all mandatory items specified in AFI 36-2101, *Classifying Military Personnel (Officer and Enlisted)*. For two-time CDC exam failures, the unit commander will take appropriate action IAW AFI 36-2201.

**Note:** Career knowledge must be documented prior to submitting a CDC waiver.

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

**A2.6.5 Training Standard.** Tasks are trained and certified to the “go” level. Go means the individual can perform the task without assistance and meets the local requirements for accuracy, timeliness, and correct use of procedures. This equates to a 3c in the proficiency code key. AFQTPs, when available, shall be used to identify Air Force standardized procedures.

**A2.7. Specialty Training Standard.** The STS is a guide for development of promotion tests used in the Weighted Airman Promotion System (WAPS). Specialty Knowledge Tests (SKTs) are developed at the USAF Airman Advancement Division by senior NCOs with extensive practical experience in their career fields. The tests sample knowledge of STS subject matter areas judged by test development team members as most appropriate for promotion to higher grades. Questions are based upon study references listed in the Enlisted Promotions References and Requirements Catalog. Individual responsibilities are in AFI 36-2605, *AF Military Testing System*. WAPS is not applicable to the Air National Guard or Air Reserve Forces.

**PART II**

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

PART II

SECTION B - COURSE OBJECTIVE LIST (COL)

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

**B1.1. Written Test (W)** - used to sample each knowledge objective and the knowledge components of performance objectives.

**B1.2. Performance Test (P)** - used under specified conditions in a formal testing mode to measure student accomplishment of performance objectives after the teaching-learning activity has been completed.

**B1.3. Progress Checks (PC)** - administered by the instructor during classroom or laboratory instruction time to assess the student's accomplishment of knowledge or performance objectives.

**B2. Standard.** The standard is 70% on written examinations. Standards for performance measurement are indicated in the objectives and delineated on the individual progress checklist. Instructor assistance is provided as needed during the progress check, and students may be required to repeat all or parts of the behavior until satisfactory performance is attained.

**B3. Proficiency Level.** Most task performance are 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 (partially proficient). The student can determine step-by-step procedures for doing the task.

**B4. Course Objective List.** These objectives are listed in the sequence taught by Block of Instruction.

**B4.1 Initial Skills Course.** A detailed listing of the initial skills course objectives may be obtained by written request to 364 TRS/DO, 511 9th Ave. Ste. 1, Sheppard AFB TX 76311.

**B4.2 Supplement/Craftsman Course.** A detailed listing of the initial skills course objects may be obtained by written request to 364 TRS/DO, 511 9th Ave. Ste. 1, Sheppard AFB TX 76311.

**B4.3 Civil Engineer Superintendents Course.** A detailed listing of WMGT 570 can be obtained through AFIT.

**PART II**

**SECTION C - SUPPORT MATERIALS**

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

**C1.1.** The *mandatory* AFQTP's for each skill level are identified, on the 3E5X1 AFQTP Documentation Record.

**C1.2.** For a complete list of up-to-date AFQTPs applicable to the 3E5X1 AFSC, go to the [CE-VLC](#) Resources Library.

**C2. AFQTP Assessment for Civil Engineer CDCs.**

**C2.1.** FDMs have developed CDC assessments for their career field and they are located on the [CE-VLC](#) under 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 specialty. Refer to the Education and Training Course Announcements (ETCA) web site, <https://etca.randolph.af.mil/> for complete information on Air Force in-residence courses.

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

<u>Course Number</u>	<u>Title</u>	<u>Developer</u>
J9AQA3E531 00RD	Engineering Apprentice (ITRO)	ARMY
JCABP3E531 00AD	Engineering AF Unique	364 TRS
JCACP3E571 01AB	Engineering Craftsman	364 TRS
JCAZP3E571 01AA	Construction Surveying	364 TRS
J7AZT3E571 01AA	Contract Construction Inspector	364 TRS
JCAZP3E571 02AA	Advanced Geographic Information Systems (GIS)	364 TRS

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

<u>Course Number</u>	<u>Title</u>	<u>Edit Code (EC)</u>
CDC 3E551A/B	Engineering Journeyman	02

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

<u>Course Number</u>	<u>Title</u>	<u>Developer</u>
N/A	CE 5-Level Core Concepts	AFCEC
N/A	CE 7-Level Core Concepts	AFCEC
N/A	3E5X1 AFQTP Assessment #8176 Establish Horizontal & Vertical Control – Automated	AFCEC
N/A	3E5X1 AFQTP Assessment # 8177 Download Electronic Survey Data to Civil Package	AFCEC
N/A	3E5X1 AFQTP Assessment # 8178 Perform An Automated Topographic Survey	AFCEC
N/A	Air Force Civil Engineer Berms and Dikes	AFCEC
N/A	Bare Base Planning and Layout	AFCEC
N/A	Construction Safety and Health Requirements	AFCEC
N/A	Contingency Airfield Layout and Marking	AFCEC
N/A	Engineering Contingency Responsibilities	AFCEC
N/A	Optical Surveying Qualification Training	AFCEC
N/A	Repair Quality Criteria	AFCEC
N/A	Soil Testing Under Field Condition	AFCEC
N/A	Survey Grade GPS – Trimble 5700 Total Station System	AFCEC
N/A	Wartime Construction Management	AFCEC
N/A	Civil 3D Essentials Training Volume I/II/III <a href="http://airforce.rguidelibrary.com/LoginForm.spr">http://airforce.rguidelibrary.com/LoginForm.spr</a>	AutoCad

PART II

D5. Courses / CDCs Under Development/Revision

<u>Course Number</u>	<u>Course Title</u>	<u>Date Due</u>
JCAZP3E571 02AB	Advanced Geographic Information System (GIS)	Jun 2016

**PART II**

**SECTION E – MAJCOM UNIQUE REQUIREMENTS**

**“There are currently no MAJCOM unique requirements.” This area is reserved.**

## PART II

## SECTION F - HOME STATION TRAINING

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

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

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

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

**F5. AF Expeditionary (ES) Training Requirement.** AETC, as lead MAJCOM for AF ES training, revamped ancillary home-station and advanced (mission specific) expeditionary skills training plans to standardize and synchronize training across the force. The AF ES training is described as Tier 2 and Tier 3 training below:

**F5.1. Tier 2:** deployment-ready expeditionary skills training. ES for all Airmen delivered at the wing level in alignment with assigned AEF band. Completion of this training is a requirement to maintain mission-ready status to produce a deployment-ready Airman, up to and including a major combat operation. Tier 2 is designed to ensure every Airman maintains ES proficiency and sustains readiness currency for deployment. Tier 2 curriculum is centrally maintained, but executed at the local level to afford commanders maximum flexibility. Tier 2 is divided into two categories; 2A: ES proficiency training (mostly CBT), and 2B: home-station pre-deployment training.

## PART II

**F5.2. Tier 3:** advanced ES training (mission specific). Enhanced ES for selected Airmen as determined by factors including deployment location, threat assessment, specific mission, duty assignment, role, operation, or special requirement. Tier 3 training provides mission specific ES for the individual Airman and/or team and includes courses designed in response to organic Air Force need or combatant commander-directed theater-specific requirements. Airmen will attend Tier 3 training such as combat Airmen skills training (CAST) when identified through the force generation process and directed in appropriate line remarks/reporting instructions.

**F6. Silver Flag Training.** All CE personnel who fill Unit Type Code (UTC) positions will receive team training at Silver Flag Exercise Sites. Silver Flag Exercise Sites are located at Tyndall AFB, FL; Ramstein AB, Germany; Joint Region Marianas, Guam and conduct training with their major focus on students being able to perform critical contingency tasks in a team environment. The training focuses on bare base bed down and sustainment operations using hands-on training with BEAR equipment in a realistic environment. Where possible, combat skills training has been added to the curriculum to ensure realism and help fortify combat skills mentality amongst teams.

**F7. Training References.**

**F7.1. AFI 10-209, *RED HORSE Program*,** Chapter 3 and Attachments 2-6 identify the RED HORSE recurring training requirements.

**F7.2. AFI 10-210, *Prime Base Engineer Emergency Force (BEEF) Program*,** Chapter 4 and Attachments 2-5 identify the Prime BEEF recurring training requirements.

**F7.3.** Web-based products are available on the CE Virtual Learning Center (VLC) website at <https://afcesa.csd.disa.mil/kc/login/login.asp>. Personnel completing these courses can receive credit for HST. CBT products can be used in a classroom setting to train as many personnel as possible. Attendance must be documented on a sign-in roster. The sign-in roster must be maintained IAW AFI 10-210.

BY ORDER OF THE SECRETARY OF THE AIR FORCE

OFFICIAL

JOHN B. COOPER  
Lieutenant General, USAF  
DCS/Logistics, Engineering & Force Protection

3 Attachments

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

## Attachment 1 Qualitative Requirements (Proficiency Code Key)

### A1. Qualitative Requirements

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

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

Proficiency Code Key		
	Scale Value	Definition: The individual
Task Performance Levels	1	Can do simple parts of the task. Needs to be told or shown how to do most of the task. (Extremely Limited)
	2	Can do most parts of the task. Needs only help on hardest parts. (Partially Proficient)
	3	Can do all parts of the task. Needs only a spot check of completed work. (Competent)
	4	Can do the complete task quickly and accurately. Can tell or show others how to do the task. (Highly Proficient)
*Task Knowledge Levels	a	Can name parts, tools, and simple facts about the task. (Nomenclature)
	b	Can determine step by step procedures for doing the task. (Procedures)
	c	Can identify why and when the task must be done and why each step is needed. (Operating Principles)
	d	Can predict, isolate, and resolve problems about the task. (Advanced Theory)
**Subject Knowledge Levels	A	Can identify basic facts and terms about the subject. (Facts)
	B	Can identify relationship of basic facts and state general principles about the subject. (Principles)
	C	Can analyze facts and principles and draw conclusions about the subject. (Analysis)
	D	Can evaluate conditions and make proper decisions about the subject. (Evaluation)
<b>Explanations</b>		
* A task knowledge scale value may be used alone or with a task performance scale value to define a level of knowledge for a specific task. (Example: b and 1b)		
** 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.		
- This mark is used alone instead of a scale value to show that no proficiency training is provided in the course or CDC.		
2b/I - This mark is used to identify Interservice Training Review Organization (ITRO) taught tasks. The U.S. Army is the lead Service for ITRO to the 3E5X1 AFSC. ITRO complies with AFI 36-2230; however, may not directly correlate to USAF proficiency code structure. Contact 3E5X1 Force Development Manager (FDM) for comments, questions or concerns.		
X - This mark is used alone in the course columns to show that training is required but not given due to limitations in resources.		
◆ - This symbol indicates the task is a diamond task due to equipment constraint at some units.		
Specific tasks not identified with a symbol or proficiency code key (blank) indicates that no training is provided in the course or CDC. Major commands and /or units may establish scale values and combat training as dictated by mission requirements.		
<b>Note 1:</b> BLK #4: Columns (1) & (2) can be relabeled to meet Career Field Requirements; i.e., 2 phase 3-skill level course, 5- and 7- level AFQTP		
<b>Note 2:</b> All tasks and knowledge items shown with a proficiency code are trained during wartime.		

**Attachment 2**  
**3E5X1 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.

A2.1.1. For new trainee the UTM will assist them in creating a training record on the [CE-VLC](#) and placing them in the correct workcenter and specialty within their unit. Additional information will need to be entered into the following areas:

**A2.1.1.1. User Administrators:**

- A2.1.1.1.1. Individual UTM
- A2.1.1.1.2. Workcenter Supervisor
- A2.1.1.1.3. Immediate Supervisor

**A2.1.1.2. User Training Information.**

- A2.1.1.2.1. Duty Position
- A2.1.1.2.2. Date Entered Duty Positions
- A2.1.1.2.3. Training Status Code
- A2.1.1.2.4. Date Entered Upgrade Training (UGT)

A2.1.2. For all other the UTM will need to place the individual into the correct workcenter and specialty. If the individual record is not available contact the losing unit to have the record transferred. If this fails contact the [AFCEC-VLC](#) Support Desk for assisting. Additional information will need to be entered into the following areas:

**A2.1.2.1. User Administrators:**

- A2.1.2.1.1. Individual UTM
- A2.1.2.1.2. Workcenter Supervisor
- A2.1.2.1.3. Immediate Supervisor

**A2.1.2.2. User Training Information.**

- A2.1.2.2.1. Duty Position
- A2.1.2.2.2. Date Entered Duty Positions
- A2.1.2.2.3. Training Status Code

**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.

**Attachment 2**  
**3E5X1 Specialty Training Standard (STS)**

1. Tasks, Knowledge, And Technical References	2. Core Tasks		3. Certification for OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Explanations)					
	A	B	A	B	C	D	E	A 3 Skill Level		B 5 Skill Level		C 7 Skill Level	
	5 Level	7 Level	Training Start	Training Complete	Trainee Initials	Trainer Initials	Certifier Initials	(1) Course	(2) D/L	(1) CDC	(3) DL	(1) Course	(3) DL
<b>1. CIVIL ENGINEER (CE) COMMON CORE CONCEPTS COURSES</b> <b>TR: <a href="#">CE Virtual Learning Center (CE-VLC)</a></b>													
1.1. Accomplish CE 5-level Core Concepts Course	*							-	-	-	-	-	-
1.2. Accomplish CE 7-level Core Concepts Course		*						-	-	-	-	-	-
1.3. Career Progression								A	-	-	-	-	-
1.4. AFSC Duties and Responsibilities													
1.4.1. Peacetime								A	-	-	-	-	-
1.4.2. Contingency								A	-	-	-	-	-
1.5. Functions of:													
1.5.1. BCE								A	-	-	-	-	-
1.5.2. Prime BEEF								A	-	-	-	-	-
1.5.3. RED HORSE								A	-	-	-	-	-
1.5.4. HQ ANG/AFRC								A	-	-	-	-	-
1.6. Training Overview								A	-	-	-	-	-
<b>2. RESERVED FOR FUTURE USE</b>													
<b>3. RESERVED FOR FUTURE USE</b>													
<b>4. RESERVED FOR FUTURE USE</b>													
<b>5. COMPUTER AIDED DRAFTING (CAD)</b> TR: ERDC/ITL TR-12-X, A/E/C CAD Standard; TM 3-34.51 (Const. Drafting), American National Standards Institute (ANSI); Architectural and Graphic Standards (AGS); <b>AFQTP 3E5X1 Module 5</b> ; AutoCAD Civil 3D Essentials Training Volume I/II/III (DL)													
5.1. Fundamentals of Drafting								2b/I	-	B	-	-	-
5.2. CAD Principles (perform tasks using software listed in CE UTC)													
5.2.1. Setup Drawings													
5.2.1.1. Paper space / Model space	*							2b/I	-	-	b	-	-
5.2.1.2. Units	*							2b/I	-	-	b	-	-

**Attachment 2**  
**3E5X1 Specialty Training Standard (STS)**

1. Tasks, Knowledge, And Technical References	2. Core Tasks		3. Certification for OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Explanations)					
	A	B	A	B	C	D	E	A		B		C	
	5 Level	7 Level	Training Start	Training Complete	Trainee Initials	Trainer Initials	Certifier Initials	(1) Course	(2) D/L	(1) CDC	(3) DL	(1) Course	(3) DL
5.2.1.3. Plot styles	*							2b/I	-	-	b	-	-
5.2.1.4. Layers	*							2b/I	-	-	b	-	-
5.2.1.5. Georeferencing	*							-	-	-	b	-	-
5.2.2. Utilize Drawings Commands													
5.2.2.1. Display	*							2b/I	-	-	b	-	-
5.2.2.2. Draw	*							2b/I	-	-	b	-	-
5.2.2.3. Edit	*							2b/I	-	-	b	-	-
5.2.2.4. Dimension	*							2b/I	-	-	b	-	-
5.2.2.5. Text	*							2b/I	-	-	b	-	-
5.2.2.6. Blocks	*							2b/I	-	-	b	-	-
5.2.2.7. Reference Files	*							2b/I	-	-	b	-	-
5.2.2.8. Printing (Plotting)	*							-	-	-	b	-	-
5.3. CAD Management													
5.3.1. Create drawings file directories								1a/I	-	b	-	-	-
5.3.2. Utilize standards, such as AEC, ANSI, AGS, ISO	*							2b/I	-	b	b	-	-
5.4. Produce Technical Drawings													
5.4.1. Civil								2b/I	-	b	-	-	-
5.4.2. Architectural								2b/I	-	b	-	-	-
5.4.3. Structural								2b/I	-	b	-	-	-
5.4.4. Mechanical								2b/I	-	b	-	-	-
5.4.5. Electrical								2b/I	-	b	-	-	-
5.5. Perform Technical Review of Drawings								-	-	B	-	-	-
5.6. Maintenance of Drawing Files													
5.6.1. Update Record Drawings								1a	-	b	-	-	-
5.6.2. Hardcopy								A	-	b	-	-	-
5.6.3. Digital								A	-	b	-	-	-
5.7. (Manual) Engineering Sketches													
5.7.1. Interpret								2b/I	-	b	-	-	-
5.7.2. Create								-	-	b	-	3c	-
<b>6. BUILDING INFORMATION MODELING (BIM)</b> TR: American National Standards Institute (ANSI); Architectural and Graphic Standards (AGS); Architectural, Engineering & Construction (AEC)													
6.1. Building Information Modeling													

**Attachment 2**  
**3E5X1 Specialty Training Standard (STS)**

1. Tasks, Knowledge, And Technical References	2. Core Tasks		3. Certification for OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Explanations)					
	A	B	A	B	C	D	E	A		B		C	
	5 Level	7 Level	Training Start	Training Complete	Trainee Initials	Trainer Initials	Certifier Initials	3 Skill Level		5 Skill Level		7 Skill Level	
								(1) Course	(2) D/L	(1) CDC	(3) DL	(1) Course	(3) DL
6.1.1. Principles Modeling								-	-	B	-	-	-
6.1.2. Parametric Modeling								-	-	B	-	-	-
6.2. BIM Principles													
6.2.1. Setup Drawings													
6.2.1.1. Project Template								-	-	B	-	-	-
6.2.1.2. Units								-	-	B	-	-	-
6.2.1.3. Plot styles								-	-	B	-	-	-
6.2.1.4. Model views								-	-	B	-	-	-
6.2.1.5. Model organization (levels & grids)								-	-	B	-	-	-
6.2.1.6. Collaboration (worksets)								-	-	B	-	-	-
6.2.2. Utilize Drawing Commands													
6.2.2.1. Display/view control								-	-	B	-	-	-
6.2.2.2. Draw/model								-	-	B	-	-	-
6.2.2.3. Edit								-	-	B	-	-	-
6.2.2.4. Dimension								-	-	B	-	-	-
6.2.2.5. Text								-	-	B	-	-	-
6.2.2.6. Create and utilize components (families)								-	-	B	-	-	-
6.2.2.7. Utilize reference files/linked files or models								-	-	B	-	-	-
6.2.2.8. Printing (Plotting)								-	-	B	-	-	-
6.3. BIM Management													
6.3.1. Project template creation and update								-	-	B	-	-	-
6.3.2. Standards utilization such as AEC, ANSI, AGS								-	-	B	-	-	-
6.3.3. Model management								-	-	B	-	-	-
6.3.4. Software license management								-	-	B	-	-	-
6.4. Produce Drawings													
6.4.1. Create sheets								-	-	B	-	-	-
6.4.2. Create rendering (camera views)								-	-	B	-	-	-
6.4.3. Create schedules								-	-	B	-	-	-
6.4.4. Manage and collect data								-	-	B	-	-	-
6.4.5. Create walkthrough								-	-	B	-	-	-
6.4.6. Technical Review of Drawings								-	-	B	-	-	-
6.4.7. QA/QC - Clash detection (Navisworks)								-	-	B	-	-	-

**Attachment 2**  
**3E5X1 Specialty Training Standard (STS)**

1. Tasks, Knowledge, And Technical References	2. Core Tasks		3. Certification for OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Explanations)					
	A	B	A	B	C	D	E	A 3 Skill Level		B 5 Skill Level		C 7 Skill Level	
	5 Level	7 Level	Training Start	Training Complete	Trainee Initials	Trainer Initials	Certifier Initials	(1) Course	(2) D/L	(1) CDC	(3) DL	(1) Course	(3) DL
6.4.8. QA/QC - Model quality								-	-	B	-	-	-
<b>7. GEOGRAPHIC INFORMATION SYSTEM (GIS)</b> TR: Federal Geographical Data Committee (FGDC); SDSFIE; AFI 32-10112; International Organization for Standards (ISO); <b>AFQTP 3E5X1 Module 7</b>													
7.1. Geographic Information Systems (GIS)													
7.1.1. Fundamentals of GIS								A	-	B	-	-	-
7.1.2. Common Installation Picture	*							A	-	B	-	-	-
7.1.3. Mission Data Set	*							A	-	B	-	-	-
7.2. GIS Principles (perform tasks using software listed in CE UTC)													
7.2.1. Setup Maps								-	-	-	-	-	-
7.2.2. Raster, vector data, and tabular data models	*							B	-	B	-	-	-
7.2.3. Map Projections	*							B	-	B	-	-	-
7.2.4. Coordinate Systems	*							B	-	B	-	-	-
7.2.5. Datums	*							B	-	B	-	-	-
7.2.6. Correct the projection, spatial reference, and precision	*							B	-	B	-	-	-
7.2.7. QA/QC (topology rules, data formats, and precisions)		*						B	-	B	-	-	-
7.3. Database Schema (i.e. SDSFIE and A/E/C)													
7.3.1. Browser	*							B	-	b	-	-	-
7.3.2. Data Container/Schema	*							B	-	b	-	-	-
7.4. Convert Geospatial Data													
7.4.1. Vector (i.e. .dwg to shape file)	*							2b	-	b		-	-
7.4.2. Raster (i.e. .tiff to Mr. Sid)								-	-	b	-	-	-
7.4.3. Database (i.e. personal to enterprise)								-	-	b	-	-	-
7.4.4. Convert Spreadsheets to GIS								-	-	b	-	-	-
7.4.5. Geo-rectify (project and stretch)								-	-	b	-	-	-
7.4.6. Data loading tools								-	-	b	-	-	-
7.5. Create and Edit Vector Data													
7.5.1. Create Data Container with subtypes								-	-	b	-	-	-
7.5.2. Create/Maintain Metadata								-	-	b	-	-	-

**Attachment 2**  
**3E5X1 Specialty Training Standard (STS)**

1. Tasks, Knowledge, And Technical References	2. Core Tasks		3. Certification for OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Explanations)					
	A	B	A	B	C	D	E	A		B		C	
	5 Level	7 Level	Training Start	Training Complete	Trainee Initials	Trainer Initials	Certifier Initials	3 Skill Level		5 Skill Level		7 Skill Level	
								(1) Course	(2) D/L	(1) CDC	(3) DL	(1) Course	(3) DL
7.5.3. Create/Modify Domain Values								-	-	b	-	-	-
7.5.4. Create/Modify Subtypes								-	-	b	-	-	-
7.5.5. Utilize Drafting Tools (trace, snaps, orthographics, etc.)								1a	-	b	-	-	-
7.5.6. Merge Data (copy, paste, etc., bring outside data into existing data)								1a	-	b	-	-	-
7.5.7. Join data (attribute, spreadsheet, etc.)								1a	-	b	-	-	-
7.5.8. Link Data (attribute, spreadsheet, etc.)								1a	-	b	-	-	-
7.5.9. Connect data between Software platforms (i.e. CAD to file and enterprise geodatabase)								-	-	b	-	-	-
7.5.10. Convert Coordinate Systems	*							2b		b	-	-	-
7.5.11. Layout and Print/Plot a Map	*							2b		b	-	-	-
7.6. Analyze and Query GIS													
7.6.1. Spatial								-	-	b	-	-	-
7.6.2. Attribute								-	-	b	-	-	-
7.7. Export Data													
7.7.1. Options (i.e. Access, SQL, shape file, pdf, dwg)								2b	-	b	-	-	-
7.7.2. Data Preparation (i.e. data parsing, attribution selection)								-	-	b	-	-	-
<b>8. SURVEYING</b> TR: Surveying with Construction Applications; Surveying: Theory and Practice; ATTP 3-34.80 (Geospatial Engineering); TM 3-34.55 (Const. Surveying); EM 1110-1-1002; EM 1110-1-1005; BLM Manual of Surveying Instructions; Manufacturers operating manuals, Civil Software Package; <b>AFQTP 3E5X1 Module 8</b> ; CE-VLC Survey Grade GPS Course (DL)													
8.1. Fundamentals of Surveying (FOUNDATION)													
8.1.1. Understand Basic Math								-	-	b	-	-	-
8.1.2. Perform Surveying Math	*							2b	-	b	-	-	-
8.1.3. Understand Coordinate References (Datums, Grids)								-	-	b	-	-	-
8.1.4. Field Data Collection Procedures													
8.1.4.1. Maintain Manual Survey Field Notes	*							2b/I	-	b	-	-	-

**Attachment 2**  
**3E5X1 Specialty Training Standard (STS)**

1. Tasks, Knowledge, And Technical References	2. Core Tasks		3. Certification for OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Explanations)					
	A	B	A	B	C	D	E	A		B		C	
	5 Level	7 Level	Training Start	Training Complete	Trainee Initials	Trainer Initials	Certifier Initials	(1) Course	(2) D/L	(1) CDC	(3) DL	(1) Course	(3) DL
8.1.4.2. Maintain Electronic Survey Field Notes	◆							2b/I	-	b	-	-	-
8.1.4.3. Utilize Feature Code Libraries/Data Dictionaries (includes create/edit)	◆							2b	-	B	-	-	-
8.1.4.4. Measure Distances	*							2b/I	-	b	-	-	-
8.1.4.5. Measure Angles	*							2b/I	-	b	-	-	-
8.1.4.6. Utilize Coordinate Geometry	◆							2b	-	b	-	-	-
8.1.5. Office Data Manipulation Procedures													
8.1.5.1. Adjust Survey Data	◆							2b	-	b	b	-	-
8.1.5.2. Generate Contours								-	-	B	-	-	-
8.1.6. Operate Modern Surveying Instruments													
8.1.6.1. Targets								2b/I	-	-	-	-	-
8.1.6.2. Levels	◆							2b/I	-	-	-	-	-
8.1.6.3. Total Stations	◆							2b/I	-	b	-	-	-
8.1.6.4. Survey-Grade Global Positioning Systems (GPS/GNSS)	◆							2b	-	b	-	-	-
8.1.6.5. Resource Grade Global Positioning Systems								-	-	-	-	-	-
8.1.6.6. GPS/GNSS Radio (includes Radio Frequency Management)	◆							2b	-	B			
8.1.6.7. Cell Phone Conversion Kit								-	-	B			
8.1.6.8. Laser Range Finder								-	-	b			
8.2. Principles of Surveying (STANDARDS/RULES)													
8.2.1. Understand Survey Control Standards													
8.2.1.1. Accuracy of Surveys (Optical and GPS/GNSS)								2b/I	-	b	-	-	-
8.2.1.2. Geodetic Control Network Surveys (includes temporary and permanent benchmarks, primary and secondary airfield control)								2b/I	-	b	-	-	-
8.2.1.3. Horizontal Control Surveys	*							2b/I	-	b	-	-	-
8.2.1.4. Vertical Control Surveys	*							2b/I	-	b	-	-	-
8.2.1.5. GPS/GNSS Surveys								A	-	B	-	-	-
8.2.2. Surveying Planning													
8.2.2.1. Perform Surveying Instrument Maintenance (Testing, Calibration, Field Adjustment)	◆							2b/I	-	b	-	-	-
8.2.2.2. Perform Reconnaissance Survey								-	-	-	-	-	-

**Attachment 2**  
**3E5X1 Specialty Training Standard (STS)**

1. Tasks, Knowledge, And Technical References	2. Core Tasks		3. Certification for OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Explanations)					
	A	B	A	B	C	D	E	A		B		C	
	5 Level	7 Level	Training Start	Training Complete	Trainee Initials	Trainer Initials	Certifier Initials	(1) Course	(2) D/L	(1) CDC	(3) DL	(1) Course	(3) DL
8.2.2.3. Utilize Mission Planning Software	♦							2b			-	-	-
8.2.2.4. Utilize Geodetic Control Network								2b	-	b	-	-	-
8.3. Surveying Applications (APPLICATION)													
8.3.1. Establish Geodetic Control Network	♦							2b	-	b	-	-	-
8.3.2. Perform Topographic Survey (Optical and GPS/GNSS)	♦							2b	-	b	-	-	-
8.3.3. Perform Construction Layout Survey													
8.3.3.1. Roads								2b/I	-	b	-	-	-
8.3.3.2. Utilities								2b/I	-	b	-	-	-
8.3.3.3. Buildings								2b/I	-	b	-	-	-
8.3.3.4. Airfields								-	-	b	-	-	-
8.3.4. Understand Aircraft Mishap Survey Response Requirements TR: AFMAN 91-223, AFI 34-242, AFH 10-247v4	*							A	-	b	-	-	-
8.3.5. Perform Expedient Survey Methods													
8.3.5.1. Pace Count	*							2b/I	-	b	-	-	-
8.3.5.2. 3-4-5 Triangle	*							1a	-	b	-	-	-
<b>9. CONTRACT MANAGEMENT</b> TR: DoDD 5500.7; AFI 32-1023, 32-6002; AFI 32-1001; AFPAM 32-1005, AFPAM 32-1000 (TM 3-34.41); AFI 63-124; AFPAM 32-1006; AFI 64-123; FAR Part 37.6; DoDD 5500.7; FAR; AFCEE Program Managers Guide for Design and Construction; AFPAM 91-210; USACE EM 385-1-1; <b>AFQTP 3E5X1 Module 9</b> ; CE-VLC Construction Safety and Health Requirements (DL)													
9.1. Standards of Conduct	*							A	-	B	-	-	B
9.2. Construction Safety and Health Requirements	*							-	-	-	-	-	B
9.3. Enforce General Contract Provisions								-	-	B	-	-	-
9.4. Conduct Constructability Review		*						-	-	b	-	-	-
9.5. Inspect Construction Activities								-	-	b	-	-	-
9.6. Document Construction Activities		*						-	-	b	-	-	-

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**3E5X1 Specialty Training Standard (STS)**

1. Tasks, Knowledge, And Technical References	2. Core Tasks		3. Certification for OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Explanations)					
	A	B	A	B	C	D	E	A		B		C	
	5 Level	7 Level	Training Start	Training Complete	Trainee Initials	Trainer Initials	Certifier Initials	3 Skill Level		5 Skill Level		7 Skill Level	
								(1) Course	(2) D/L	(1) CDC	(3) DL	(1) Course	(3) DL
9.7. Evaluate Construction Contract Progress Schedule		*						-	-	b	-	-	-
9.8. Evaluate Progress Reports		*						-	-	b	-	-	-
9.9. Evaluate Materials Submittals and Test Reports		*						-	-	b	-	-	-
9.10. Pre-Performance Conference								-	-	B	-	-	-
9.11. Coordinate Construction Permits								-	-	B	-	-	-
9.12. Surveillance of Military Construction (MILCON) projects		*						-	-	B	-	-	-
9.13. Project Close-out Procedures								-	-	b	-	-	-
9.14. Warranty and Guarantee Program								-	-	b	-	-	-
9.15. Contract Modifications								-	-	b	-	-	-
9.16. Simplified Acquisition Base Engineer Requirements (SABER)								-	-	B	-	-	-
9.17. Indefinite Delivery Indefinite Quantity (IDIQ)								-	-	B	-	-	-
<b>10. INSTALLATION PLANNING/MAPPING</b> TR: AFIs 32-1021, 32-1022, 32-1023, 32-1024, 32-1032, 32-6002, 32-7062, 32-10140, 32-10141; AFMAN 91-201, AFPAM 32-1104v2, 32-1005; CONOPs - ESM and ESSP; <b>AFQTP 3E5X1 Module 10</b> ; CE-VLC Wartime Construction Management Course (DL)													
10.1. Air Force Comprehensive Plan Requirements		*						-	-	B	-	B	b
10.2. Apply Site Planning Requirements		*						-	-	B	-	2b	b
<b>11. CIVIL ENGINEERING DESIGN</b> TR: AFI 32-1023, UFC 1-200-1, Means Building Construction Cost Data; AFI 10-245, UFC 3-120-10, 3-260-01, UFC 3-700-01, AFI 32-6002, 32-1021, AFI 32-1022, AFI 32-1032, UFC 4-010-01, 4-010-02; TM 3-34.51; Unified Facilities Guide Specifications; Federal Acquisition Regulation (FAR); <b>AFQTP 3E5X1 Module 11</b> ; CE-VLC Wartime Construction Management Course (DL)													

**Attachment 2**  
**3E5X1 Specialty Training Standard (STS)**

1. Tasks, Knowledge, And Technical References	2. Core Tasks		3. Certification for OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Explanations)					
	A	B	A	B	C	D	E	A		B		C	
	5 Level	7 Level	Training Start	Training Complete	Trainee Initials	Trainer Initials	Certifier Initials	3 Skill Level		5 Skill Level		7 Skill Level	
								(1) Course	(2) D/L	(1) CDC	(3) DL	(1) Course	(3) DL
<b>11.1. Develop Preliminary Design</b>													
<b>11.1.1. Architectural</b>		*						-	-	B	-	2b	-
<b>11.1.2. Civil</b>		*						-	-	B	-	2b	-
<b>11.1.3. Structural</b>		*						-	-	B	-	2b	-
<b>11.1.4. Mechanical</b>		*						-	-	B	-	2b	-
<b>11.1.5. Electrical</b>		*						-	-	B	-	2b	-
<b>11.2. Prepare Bill of Materials (BOM)</b>		*						-	-	b	-	2b	-
<b>11.3. Estimate Cost Elements such as: Materials, Equipment, and Labor</b>		*						-	-	b	-	2b	b
<b>11.4. Develop Statements of Work (SOW)</b>		*						-	-	b	-	2b	-
<b>11.5. Prepare Project Specifications</b>								-	-	b	-	2b	-
<b>11.6. Design Review such as: Materials, Equipment, Installation, and Construction</b>								-	-	b	-	2b	-
<b>11.7. Prepare Programming Documents</b>		*						-	-	b	-	2b	-
<b>11.8. Apply Anti-Terrorism Force Protection Engineering Measures</b>		*						-	-	B	-	2b	-
<b>12. CONSTRUCTION MATERIALS TESTS</b> TR: FM 5-472 [AFJMAN 32-32-1221(I)]; UFC 3-220-10N; ASTM D2487; ASTM D6951; <b>AFQTP 3E5X1 Module 12</b> ; CE-VLC Soil Testing under Field Conditions Course (DL)													
<b>12.1. Principles of Soils Exploration</b>													
<b>12.1.1. Soils Exploration (Soil Sampling, USCS)</b>								A	-	B	-	-	-
<b>12.1.2. Moisture Content</b>								-	-	-	-	-	-
<b>12.1.3. Sieve Analysis</b>								-	-	-	-	-	-
<b>12.1.4. Laboratory CBR</b>								-	-	-	-	-	-
<b>12.1.5. Plasticity Tests</b>								-	-	-	-	-	-
<b>12.1.6. Proctor/Modified Proctor Tests</b>								-	-	-	-	-	-
<b>12.1.7. Density</b>								-	-	-	-	-	-
<b>12.1.8. Boring Logs</b>								-	-	-	-	-	-
<b>12.1.9. Hydrometer</b>								-	-	-	-	-	-
<b>12.2. Classify Soils in Field Conditions</b>								A	-	B	-	3c	B

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**3E5X1 Specialty Training Standard (STS)**

1. Tasks, Knowledge, And Technical References	2. Core Tasks		3. Certification for OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Explanations)						
	A	B	A	B	C	D	E	A 3 Skill Level		B 5 Skill Level		C 7 Skill Level		
	5 Level	7 Level	Training Start	Training Complete	Trainee Initials	Trainer Initials	Certifier Initials	(1) Course	(2) D/L	(1) CDC	(3) DL	(1) Course	(3) DL	
12.3. Determine CBR and Layer Structure using Dynamic Cone Penetrometer (DCP)		♦							2b	-	b			B
12.4. Perform Material Tests														
12.4.1. Soil														
12.4.1.1. Moisture Content									-	-	A	-	-	-
12.4.1.2. Sieve Analysis									-	-	A	-	-	-
12.4.1.3. Laboratory CBR									-	-	A	-	-	-
12.4.1.4. Plasticity														
12.4.1.4.1. Atterberg Test									-	-	A	-	-	-
12.4.1.4.2. Roll and Thread Test									-	-	A	-	-	-
12.4.1.4.3. Proctor/Modified Proctor Tests									-	-	A	-	-	-
12.4.1.4.4. Density									-	-	A	-	-	-
12.4.1.4.5. Hydrometer									-	-	A	-	-	-
12.4.2. Asphalt														
12.4.2.1. Marshall Stability Mix Design									-	-	A	-	-	-
12.4.2.2. Asphalt Determination									-	-	A	-	-	-
12.4.2.3. Specific Gravity														
12.4.2.3.1. Specific Gravity: Theoretical									-	-	A	-	-	-
12.4.2.3.2. Specific Gravity: Bulk									-	-	A	-	-	-
12.4.3. Concrete														
12.4.3.1. Slump test									-	-	A	-	-	-
12.4.3.2. Temperature									-	-	A	-	-	-
12.4.3.3. Air Content by Pressure Method									-	-	A	-	-	-
12.4.3.4. Field Cure/Laboratory Cure Methods									-	-	A	-	-	-
12.4.3.5. Compressive and Flexural Strength Tests									-	-	A	-	-	-
12.5. Evaluate Material Testing Procedures and Reports														
12.5.1. Soil														
12.5.1.1. Moisture Content									-	-	-	-	2b	-
12.5.1.2. Sieve Analysis									-	-	-	-	2b	-
12.5.1.3. Laboratory CBR									-	-	-	-	2b	-
12.5.1.4. Plasticity Tests									-	-	-	-	-	-
12.5.1.5. Proctor/Modified Proctor Tests									-	-	-	-	2b	-

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**3E5X1 Specialty Training Standard (STS)**

1. Tasks, Knowledge, And Technical References	2. Core Tasks		3. Certification for OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Explanations)					
	A	B	A	B	C	D	E	A		B		C	
	5 Level	7 Level	Training Start	Training Complete	Trainee Initials	Trainer Initials	Certifier Initials	(1) Course	(2) D/L	(1) CDC	(3) DL	(1) Course	(3) DL
12.5.1.6. In-Place Density Tests								-	-	-	-	2b	-
12.5.1.7. Boring Logs								-	-	-	-	-	-
12.5.1.8. Hydrometer								-	-	-	-	-	-
12.5.2. Asphalt													
12.5.2.1. Marshall Stability Mix Design								-	-	-	-	2b	-
12.5.2.2. Asphalt Determination								-	-	-	-	2b	-
12.5.2.3. Specific Gravity Tests								-	-	-	-	2b	-
12.5.3. Concrete													
12.5.3.1. Slump Test								-	-	-	-	2b	-
12.5.3.2. Temperature								-	-	-	-	2b	-
12.5.3.3. Air Content by Pressure Method								-	-	-	-	2b	-
12.5.3.4. Field Cure/Laboratory Cure Methods								-	-	-	-	2b	-
12.5.3.5. Compressive Strength Tests								-	-	-	-	2b	-
12.5.3.6. Flexural Strength Tests								-	-	-	-	2b	-
<b>13. AFS SPECIFIC CONTINGENCY RESPONSIBILITIES</b> TR: AFIs 10-209, 10-210, 10-211; T.O.s 35E-5-6-1, 35E4-132-1, 35E4-94-1; Army TMs 10-8340-207-14, 10-450-200-12; WMP-1, Annex S; AFPAM 10-219 series, AFH 10-222 series; <b>AFQTP 3E5X1 Module 13</b>													
13.1. Predeployment beddown planning and purpose TR: AFPAM 10-219, Vol 5, 6 ; AFI 10-401, 10-404; AFI 11-218, 11-235; AFH 10-222 v1 & 2; AFTTP 3-32.11; UFC's 3-260-01, 4-010-01, CONOPs, ESM & ESSP													
13.1.1. Contingency Planning Factors								A	-	B	-	-	-
13.1.2. Standards of construction								A	-	B	-	-	-
13.1.3. Identify Bare Base assets								A	-	B	-	-	-
13.1.4. Base Support and Expeditionary Site Planning TR: AFI 10-404								A	-	B	-	-	-
13.1.5. Expeditionary Site Survey Process (ESSP)								A	-	B	-	-	-
13.1.6. Expeditionary Site Mapping								A	-	B	-	-	-

**Attachment 2**  
**3E5X1 Specialty Training Standard (STS)**

1. Tasks, Knowledge, And Technical References	2. Core Tasks		3. Certification for OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Explanations)					
	A	B	A	B	C	D	E	A		B		C	
	5 Level	7 Level	Training Start	Training Complete	Trainee Initials	Trainer Initials	Certifier Initials	3 Skill Level		5 Skill Level		7 Skill Level	
								(1) Course	(2) D/L	(1) CDC	(3) DL	(1) Course	(3) DL
(ESM)													
13.1.7. Aircraft Parking Planning TR: UFC 3-260-01, AFI 11-218								A	-	B	-	-	-
13.1.8. Base Conceptual Planning Guidance								A	-	B	-	-	-
13.1.9. Time-Phased Force Development Data								-	-	B	-	-	-
13.1.10. Combat Air Base Planning Applications (performs tasks using software listed in CE UTC)													
13.1.10.1. Utilize Bare Base Planning within GeoExPT software		*						A	-	b	-	-	-
13.1.10.2. Utilize Aircraft Parking Planner within GeoExPT software		*						A	-	b	-	-	-
13.1.11. Assess Facility and Utility Beddown Options								-	-	B	-	-	-
13.2. Beddown Operations TR: AFPAM 10-219; AFDD 3-34, UFC 4-010-01, UFC 4-010-02													
13.2.1. Initial Air Base/Airfield Evaluation								A		b	-	-	-
13.2.2. Apply Bare Base Planning Criteria													
13.2.2.1. Perform Site Selection		*						1a	-	b	-	-	-
13.2.2.2. Establish Dispersed Layout								A	-	B	-	-	-
13.2.2.3. Establish Non-Dispersed Layout		*						1a	-	b	-	-	-
13.2.2.4. Shelter Orientation								A	-	B	-	-	-
13.2.2.5. Aircraft Revetment Siting								A	-	B	-	-	-
13.2.3. Employment Operations													
13.2.3.1. Emergency Operations Center (EOC)								B	-	B	-	-	-
13.2.3.2. Unit Control Center (UCC) Operations								B	-	B	-	-	-
13.2.3.3. Perform Airfield Damage Assessment	*							b	-	b	-	-	-
13.2.3.4. Perform Facility and Utility Damage Assessment								b	-	b	-	-	-
13.2.3.5. Plot Airfield/Facility Damage	*							2b	-	b	-	-	-
13.2.3.6. Minimum Operating Strip (MOS) Selection Procedures TR: AFPAM 10-219 v4, T.O. 35E2-6-1, UFC 3-270-07													
13.2.3.6.1. Perform Minimum	*							2b	-	b	-	-	-

**Attachment 2**  
**3E5X1 Specialty Training Standard (STS)**

1. Tasks, Knowledge, And Technical References	2. Core Tasks		3. Certification for OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Explanations)					
	A	B	A	B	C	D	E	A		B		C	
	5 Level	7 Level	Training Start	Training Complete	Trainee Initials	Trainer Initials	Certifier Initials	(1) Course	(2) D/L	(1) CDC	(3) DL	(1) Course	(3) DL
Operating Strip (MOS) Selection Procedures and Considerations													
13.2.3.6.2. Utilize Airfield Damage Repair Software Package for ADR	*								A	-	-	-	-
13.2.3.7. Minimum Airfield Operating Surface (MAOS)	*								A	-	b	-	-
13.2.3.8. Compute Repair Quality Criteria (RQC) for ADR TR: ETL 13-1	*								b	-	b	-	-
13.2.3.9. Layout Minimum Airfield Operating Surface Marking System (MAOSMS)	♦								b	-	b	-	-
13.2.3.10. Perform Crater Profile Measurement (CPM) Operations	♦								2b	-	b	-	-
13.2.3.11. Determine Soil Strength for Airfield Damage Repair	♦								-	-	b	-	-
13.2.3.12. EALS PAPI Layout													
13.2.3.12.1. Emergency Airfield Lighting Systems (EALS) Procedures TR: T.O. 35F5-3-16-1									-	-	B	-	-
13.2.3.12.2. Perform EALS Layout	♦								-	-	b	-	-
13.2.3.12.3. Calculate Precision Approach Path Indicator (PAPI) Light Elevation and Location	♦								-	-	b	-	-
13.2.3.12.4. Layout and Align PAPI Lights	♦								-	-	b	-	-
13.2.4. Mobile Aircraft Arresting System (MAAS) Procedures TR: AFPAM 10-219, Vol 3, 4 & 5; T.O.s 35E8-2-5-4, 35E8-2-10-3, 35E8-2-10-1S-1, 35E8-2-1-101, 35E8-2-10-1, ; FMs 5-430-00-2, 35E8-2-11-1, 35E8-2-11-2; ETL 02-19													
13.2.4.1. Determine Soil Strength for MAAS Installation	♦								-	-	b	-	-
13.2.4.2. Layout and Align MAAS with Fairlead Beams	♦								-	-	b	-	-
13.2.4.3. Layout and Align MAAS with Standard Fairlead Beams and Dead Man Anchoring System	♦								-	-	b	-	-

### Attachment 3

## 3E5X1 Air Force Qualification Training Package (AFQTP) & Distance Learning (DL) Documentation Record

### A3. AFQTP & DL Documentation Record.

A3.1. To ensure each Engineering trainee is trained to the correct standard an AFQTP has been developed for each core (\*) and diamond (♦) tasks identified in their STS. These AFQTPs **are mandated** to be used by the trainee, trainer, and certifier in their on-the-job-training program for upgrade to the 5- or 7-level.

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

A3.2.1. The UTM or supervisor can download AFQTP's from [CE-VLC](#) reference library.

A3.2.2. In additional to the paper-based AFQTPs there are web-based courses or assessments developed for certain tasks that are available on the [CE-VLC](#) under the specialty topic area.

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

A3.3.1. **Core/Diamond 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.

A3.4. 3E5X1 Core and Diamond Tasks Requirements.

Task Number	Tasks, Knowledge and Technical References	Core/Diamond Tasks		Certification of AFQTPs			
		5 Level	7 Level	Tng Start	Tng Complete	Trainee Initials	Trainer Initials
<b>1.</b>	<b>Civil Engineer (CE) Common Core Concepts Courses</b>						
1.1.	Accomplish CE 5-Level Core Concepts Course	*					
1.2.	Accomplish CE 7-Level Core Concepts Course		*				
<b>5.</b>	<b>COMPUTER AIDED DRAFTING (CAD)</b>						
5.2.1.	Setup Drawings						
5.2.1.1.	Paper space / Model space	*					
5.2.1.2.	Units	*					
5.2.1.3.	Plot styles	*					

**Attachment 3**  
**3E5X1 Air Force Qualification Package (AFQTP) and Distance Learning (DL)**  
**Documentation Record**

Task Number	Tasks, Knowledge and Technical References	Core/Diamond Tasks		Certification of AFQTPs			
		5 Level	7 Level	Tng Start	Tng Complete	Trainee Initials	Trainer Initials
5.2.1.4.	Layers	*					
5.2.1.5.	Georeferencing	*					
<b>5.2.2.</b>	<b>Utilize Drawings Commands</b>						
5.2.2.1.	Display	*					
5.2.2.2.	Draw	*					
5.2.2.3.	Edit	*					
5.2.2.4.	Dimension	*					
5.2.2.5.	Text	*					
5.2.2.6.	Blocks	*					
5.2.2.7.	Reference Files	*					
5.2.2.8.	Printing (Plotting)	*					
<b>5.3.</b>	<b>CAD Management</b>						
5.3.2.	Utilize standards, such as AEC, ANSI, AGS, ISO	*					
<b>7.</b>	<b>GEOGRAPHIC INFORMATION SYSTEM (GIS)</b>						
<b>7.1.</b>	<b>Geographic Information Systems (GIS)</b>						
7.1.2.	Common Installation Picture	*					
7.1.3.	Mission Data set	*					
<b>7.2.</b>	<b>GIS Principles (perform tasks using software listed in CE UTC)</b>						
7.2.2.	Raster, vector data, and tabular data models	*					
7.2.3.	Map Projections	*					
7.2.4.	Coordinate Systems	*					
7.2.5.	Datums	*					
7.2.6.	Correct the projection, spatial reference, and precision	*					
7.2.7.	QA/QC (topology rules, data formats, and precisions)		*				
<b>7.3.</b>	<b>Database Schema (i.e. SDSFIE and A/E/C)</b>						
7.3.1.	Browser	*					
7.3.2.	Data Container/Schema	*					
<b>7.4.</b>	<b>Convert Geospatial Data</b>						
7.4.1.	Vector (i.e. .dwg to shape file)	*					
<b>7.5.</b>	<b>Create and Edit Vector Data</b>						
7.5.10.	Convert Coordinate Systems	*					
7.5.11.	Layout and Print/Plot a Map	*					
<b>8.</b>	<b>SURVEYING</b>						
<b>8.1</b>	<b>Fundamentals of Surveying (FOUNDATION)</b>						
8.1.2.	Perform Surveying Math	*					
<b>8.1.4.</b>	<b>Field Data Collection Procedures</b>						

**Attachment 3**  
**3E5X1 Air Force Qualification Package (AFQTP) and Distance Learning (DL)**  
**Documentation Record**

Task Number	Tasks, Knowledge and Technical References	Core/Diamond Tasks		Certification of AFQTPs			
		5 Level	7 Level	Tng Start	Tng Complete	Trainee Initials	Trainer Initials
8.1.4.1.	Maintain Manual Survey Field Notes	*					
8.1.4.2.	Maintain Electronic Survey Field Notes	◆					
8.1.4.3.	Utilize Feature Code Libraries/Data Dictionaries (incl create/edit)	◆					
8.1.4.4.	Measure Distances	*					
8.1.4.5.	Measure Angles	*					
8.1.4.6.	Utilize Coordinate Geometry	◆					
8.1.5.	Office Data Manipulation Procedures						
8.1.5.1.	Adjust Survey Data	◆					
8.1.6.	Operate Modern Surveying Instruments						
8.1.6.2.	Levels	◆					
8.1.6.3.	Total Stations	◆					
8.1.6.4	Survey-Grade Global Positioning Systems (GPS/GNSS)	◆					
8.1.6.6.	GPS/GNSS Radio (includes Radio Frequency Management)	◆					
8.2	Principles of Surveying (STANDARDS/RULES)						
8.2.1.	Understand Survey Control Standards						
8.2.1.3.	Horizontal Control Surveys	*					
8.2.1.4.	Vertical Control Surveys	*					
8.2.2.	Surveying Planning						
8.2.2.1.	Perform Surveying Instrument Maintenance (Testing, Calibration, Field Adjustment)	◆					
8.2.2.3.	Utilize Mission Planning Software	◆					
8.3.	Surveying Applications (APPLICATION)						
8.3.1.	Establish Geodetic Control Network	◆					
8.3.2.	Perform Topographic Survey (Optical and GPS)	◆					
8.3.4.	Understand Aircraft Mishap Survey Response Requirements	*					
8.3.5.	Perform Expedient Survey Methods						
8.3.5.1	Pace Count	*					
8.3.5.2.	3-4-5 Triangle	*					
9.	<b>CONTRACT MANAGEMENT</b>						
9.1.	Standards of Conduct	*					
9.2.	Construction Safety and Health Requirements	*					
9.4.	Conduct Constructability Review		*				
9.6.	Document Construction Activities		*				
9.7.	Evaluate Construction Contract Progress Schedule		*				
9.8.	Evaluate Progress Reports		*				

**Attachment 3**  
**3E5X1 Air Force Qualification Package (AFQTP) and Distance Learning (DL)**  
**Documentation Record**

9.9.	Evaluate Materials Submittals and Test Reports		*				
9.12.	Surveillance of Military construction (MILCON) projects		*				
<b>10.</b>	<b>INSTALLATION PLANNING/MAPPING</b>						
10.1.	Air Force Comprehensive Plan Requirements		*				
10.2.	Apply Site Planning Requirements		*				
<b>11.</b>	<b>CIVIL ENGINEERING DESIGN</b>						
Task Number	Tasks, Knowledge and Technical References	Core/Diamond Tasks		Certification of AFQTPs			
		5 Level	7 Level	Tng Start	Tng Complete	Trainee Initials	Trainer Initials
11.1.	Develop Preliminary Design						
11.1.1.	Architectural		*				
11.1.2.	Civil		*				
11.1.3.	Structural		*				
11.1.4.	Mechanical		*				
11.1.5.	Electrical		*				
11.2.	Prepare Bill of Materials (BOM)		*				
11.3.	Estimate Cost Elements such as: Materials, Equipment, and Labor		*				
11.4	Develop Statements of Work (SOW)		*				
11.7	Prepare Programming Documents		*				
11.8.	Apply Anti-Terrorism Force Protection Engineering Measures		*				
<b>12.</b>	<b>CONSTRUCTION MATERIALS TESTS</b>						
12.3	Determine CBR and Layer Structure using Dynamic Cone Penetrometer		◆				
<b>13.</b>	<b>AFS SPECIFIC CONTINGENCY RESPONSIBILITIES</b>						
13.1.10.	Combat Air Base Planning Applications (performs tasks using software listed in CE UTC)						
13.1.10.1.	Utilize Bare Base Planning within GeoExPT software		*				
13.1.10.2.	Utilize Aircraft Parking Planner within GeoExPT software		*				
13.2.2.	Apply Bare Base Planning Criteria						
13.2.2.1.	Perform Site Selection		*				
13.2.2.3.	Establish Non-Dispersed Layout		*				
13.2.3.	Employment Operations						
13.2.3.3.	Perform Airfield Damage Assessment	*					
13.2.3.5.	Plot Airfield/Facility Damage	*					
13.2.3.6.	Minimum Operating Strip (MOS) Selection Procedures						
13.2.3.6.1.	Perform Minimum Operating Strip (MOS) Selection Procedures and Considerations	*					
13.2.3.6.2.	Utilize Airfield Damage Repair Software Package for ADR	*					

**Attachment 3**  
**3E5X1 Air Force Qualification Package (AFQTP) and Distance Learning (DL)**  
**Documentation Record**

13.2.3.7	Minimum Airfield Operating Surface (MAOS)	*					
13.2.3.8.	Compute Repair Quality Criteria (RQC) for ADR	*					
13.2.3.9.	Layout Minimum Airfield Operating Surface Marking System (MAOSMS)	◆					
13.2.3.10.	Perform Crater Profile Measurement (CPM) Operations	◆					
13.2.3.11.	Determine Soil Strength for Airfield Damage Repair	◆					
13.2.3.12.	EALS PAPI Layout						
13.2.3.12.2	Perform EALS Layout	◆					
13.2.3.12.3	Calculate Precision Approach Path Indicator (PAPI) Light Elevation and Location	◆					
13.2.3.12.4	Layout and Align PAPI Lights	◆					
13.2.4.	Mobile Aircraft Arresting System (MAAS) Procedures						
13.2.4.1.	Determine Soil Strength for MAAS Installation	◆					
13.2.4.2.	Layout and Align MAAS with Fairlead Beams	◆					
13.2.4.3.	Layout and Align MAAS with Standard Fairlead Beams and Dead Man Anchoring System	◆					