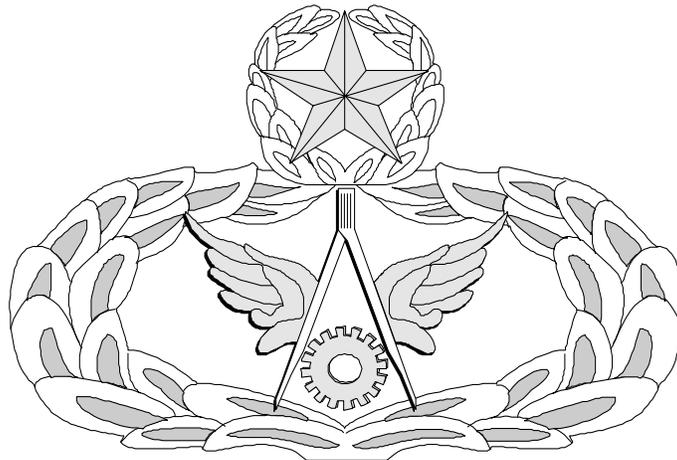


AFSC 3E4X1
UTILITIES SYSTEMS



MASTER



BASIC



SENIOR

CAREER FIELD
EDUCATION AND TRAINING PLAN

**CAREER FIELD EDUCATION AND TRAINING PLAN
UTILITIES SYSTEMS SPECIALTY
3E4X1**

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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, training support resources, and minimum core task requirements for this specialty. The CFETP will provide personnel a clear career path to success and instill rigor in all aspects of career field training.

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

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

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

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

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

2.1.4. Section D indicates resource constraints.

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

2.2. Part II includes the following:

2.2.1. 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.

2.2.2. Section B contains the course objective list and training standards supervisors will use to determine if airmen satisfy training requirements.

2.2.3. Section C identifies available support materials. Air Force Qualification Training Packages (AFQTPs) and CerTests support both Upgrade Training (UGT) and qualification training. AFQTPs are indexed in AF Index (AFIND) 8, Numerical Index of Specialized Educational Training Publications.

2.2.4. 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.

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

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

3. 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. At unit level, supervisors and trainers will 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 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.

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 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.

Certification and Testing (CerTest). A multi-media evaluation program used to test an individual's knowledge of principles and procedures in their career field.

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.

Continuation Training. Additional training exceeding requirements with emphasis on present and future duty assignments.

Core Task. A task Air Force Career Field Managers (AFCFMs) identified as a minimum qualification requirement within an Air Force specialty or duty position. These tasks exemplify the essence of the career field.

Course Objective List (COL). A publication derived from initial/advanced skills course training standard, identifying the tasks and knowledge requirements, and respective standards provided to achieve a 3-, 5-, and 7-skill level in this career field. Supervisors use the COL to assist in conducting graduate evaluations in accordance with AFI 36-2201, Developing, Managing, and Conducting Training.

Critical Task. 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 certification of these tasks. In instances where required equipment is not available for instruction, completion of the task's AFQTP and passing the corresponding CerTest is all that is required for upgrade and qualification training. Hands-on certification should be accomplished at the first opportunity when equipment is available.

Distance Learning (DL). Includes Video Teleseminar (VTS), Video Teletraining (VTT), and Computer-Based Training (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 Task. The tasks assigned to an individual for the position currently held. These include as a minimum all core tasks, critical tasks, and any other tasks assigned by the supervisor.

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

Exportable Training. Additional training via computer-assisted, paper text, interactive video, or other necessary means to supplement training.

Field Technical Training (Type 4). Special or regular on-site training conducted by a Field Training Detachment (FTD) or by a Mobile Training Team (MTT).

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.

Instructional System Development (ISD). A deliberate and orderly, but flexible, process for planning, developing, implementing, and managing instructional systems. It ensures personnel are taught in a cost-efficient way the knowledge, skills, and attitudes essential for successful job performance.

Mission Ready Airmen (MRA) Training. Initial skills training allowing airmen to perform select tasks unsupervised equal to 3-levels with one year of experience.

Occupational Survey Report (OSR). A detailed report showing the results of an occupational survey of tasks performed within a particular AFS.

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.

Optimal Training. The ideal combination of training settings resulting in the highest levels of proficiency on specified performance requirements within the minimum time possible.

Proficiency Training. Additional training, either in-residence, exportable advanced 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.

Readiness Training Package (RTP). Establishes standard levels of knowledge and proficiency for common Disaster Preparedness and Readiness subject areas by providing instructors with training references, materials, and lesson objectives used in teaching and evaluating the course subject matter.

Representative Sites. Typical organizational units having similar missions, weapon systems or equipment, or a set of jobs, used as a basis for estimating average training capacities and costs within the Training Impact Decision System (TIDES).

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

Skills Training. A formal course resulting in the award of a skill level.

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.

Spin-up Training. Training required just prior to a select deployment that delivers training necessary for mission accomplishment. It is typically predicated on hard to attain contingency skills.

Standard. An exact value, a physical entity, or an abstract concept, established and defined by authority, custom, or common consent to serve as a reference, model, or rule in measuring quantities or qualities, establishing practices or procedures, or evaluating results; a fixed quantity or quality.

Supplemental Training. Training for a portion of an AFS without a change in AFSC. Formal training on new equipment, methods, and technology that are not suited for on-the-job training.

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

Training Capacity. The capability of a training setting to provide training on specified requirements, based on the availability of resources.

Training Impact Decision System (TIDES). A computer-based decision support technology designed to assist Air Force Career Field Managers (AFCFMs) in making critical judgments relevant to what training should be provided to personnel within career fields, when training should be provided (at what career points), and where training should be conducted (training setting). A TIDES template is used Air Force-wide for standardization and formatting of CFETPs.

Training Planning Team (TPT). Comprised of the same personnel as a U&TW; however, TPTs are more intimately involved in training development and the range of issues is greater than is normal in the U&TW forum.

Training Requirements Analysis. A detailed analysis of tasks for a particular AFS to be included in the training decision process.

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). A forum of the AFCFMs, MAJCOM Functional Managers (MFMs), Subject Matter Experts (SMEs), and AETC training personnel that determines career ladder training requirements.

PART I

SECTION A - GENERAL INFORMATION

1. Purpose. This CFETP provides information necessary for Air Force Career Field Managers (AFCFMs), MAJCOM Functional Managers (MFMs), commanders, Unit Education and Training Managers (UETMs), supervisors, and trainers to plan, develop, manage, and conduct an effective career field training program. This plan outlines the training individuals require to develop and progress throughout their careers. It identifies initial skills, upgrade, qualification, advanced, and proficiency training.

1.1. 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. Normally, this training is conducted by AETC at one of the technical training wings.

1.2. Upgrade training. Identifies the mandatory courses, task qualification requirements, and correspondence course completion requirements for award of the 5-, 7-, and 9-skill levels.

1.3. Qualification training. Is actual 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 required to do the job.

1.4. Advanced training. Is a formal course that 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.

1.5. Proficiency training. Is additional training, either in-residence, exportable advanced training courses, or on-the-job training, provided to personnel to increase their skills and knowledge beyond the minimum required for upgrade.

2. The CFETP has several purposes:

2.1. 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.

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

2.3. Lists training courses available in the specialty and identifies sources of training and training delivery methods.

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

3. Uses. The plan will be used by MFMs and supervisors at all levels to ensure comprehensive and cohesive training programs are available for each individual in the specialty.

3.1. AETC training personnel will develop/revise formal resident, nonresident, 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, Air Force Civil Engineer Support Agency Training Division (HQ AFCESA/CEOF) to develop acquisition strategies for obtaining resources needed to provide the identified training.

3.2. AF Career Field Managers and MAJCOM Functional Managers will ensure their training programs complement CFETP mandatory initial, upgrade, and proficiency requirements and identify requirements that can be satisfied by OJT, resident training, contract training, CerTest, or exportable courses. MAJCOM-developed training to support this AFS must be identified for inclusion into the plan.

3.3. 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.

3.4. Each individual will complete the mandatory training requirements specified in this plan. The lists of courses in Part II will be used as a reference to support training.

4. 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.

SECTION B - CAREER FIELD PROGRESSION AND INFORMATION

5. Specialty Descriptions. Utilities Systems Apprentice, Journeyman, Craftsman, and Superintendent.

5.1 Specialty Summary. Installs, inspects, repairs, and manages plumbing, water distribution, wastewater collection systems and components, fire suppression and backflow prevention systems. Complies with environmental and safety regulations. Related DoD Occupational Subgroup: 720.

5.2. Duties and Responsibilities for Apprentice, Journeyman, and Craftsman.

5.2.1. Installs and operates plumbing, water, wastewater, fire suppression and backflow prevention systems and components.

5.2.1.1. Monitors systems operation to ensure efficiency and compliance.

5.2.1.2. Ensures compliance with safety and environmental regulations for hazardous materials.

5.2.1.3. Installs and operates field potable water treatment equipment.

5.2.1.4. Operates computer and communications equipment to support work force management activities. Manages preparation and maintenance of work force records and reports.

5.2.1.5. Performs quantitative study of management data to assess Civil Engineer (CE) cost and reimbursement, work performance, progress, trends, standards, and policies.

5.2.1.6. Manages Recurring Work Program (RWP) and provides non-technical automated assistance as needed.

5.2.2. Maintains, inspects, and repairs plumbing, water, wastewater, fire suppression, and backflow prevention systems and components.

5.2.2.1. Performs inspection, recurring maintenance, and seasonal overhaul on systems and components.

5.2.2.2. Troubleshoots malfunctions.

5.2.2.3. Uses drawings and schematics to analyze and isolate system malfunctions.

5.2.2.4. Removes, repairs, and replaces defective components.

5.2.2.5. Modifies equipment for specific missions or to increase efficiency.

5.2.2.6. Locates and determines quality and quantity of water sources.

5.2.3. Solves complex maintenance problems by studying as-built and schematic drawings.

5.2.3.1. Solves complex maintenance problems by studying layout drawings, wiring and schematic drawings, and by analyzing construction and operating characteristics.

5.2.3.2. Develops and establishes operation and maintenance procedures to ensure maximum efficiency.

5.2.3.3. Coordinates locations of field latrines and pits with engineering and medical staff.

5.2.3.4. Analyzes water for chemical and physical characteristics to determine water purification treatment methods.

5.2.4. Performs planning activities.

5.2.4.1. Performs facility surveys.

5.2.4.2. Surveys proposed work to determine resource requirements.

5.2.4.3. Prepares cost estimates for in-service work.

5.2.4.4. Applies engineered performance standards to plan and estimate jobs.

5.2.4.5. Coordinates plans and other activities.

5.3. Duties and Responsibilities for Superintendent. Advises on problems associated with the career field.

5.3.1. Manages and advises on issues related to the Utilities Systems career field.

5.3.2. Resolves complex issues related to CE cost and reimbursement, work performance, progress trends, standards, and policies.

5.3.3. Evaluates inspection findings and recommends corrective actions.

6. Skill/Career Progression. Adequate training and timely progression from the apprentice to the superintendent skill level play an important role in the Air Force's ability to accomplish its mission. It is essential that everyone involved in training do their part to plan, manage, and conduct an effective training program. The guidance provided in this part of the CFETP will ensure individuals receive viable training at appropriate points in their careers.

6.1. Apprentice (3-Level).

6.1.1. Upon completion of initial skills training, a trainee will work with a trainer to enhance their knowledge and skills.

6.1.2. Utilize the Career Development Course (CDC), Air Force Qualification Training Packages (AFQTPs) and other exportable courses for subject and task fundamentals in the career field. Successfully complete applicable CerTests.

6.1.3. Once trained and task certified, a trainee may perform the task unsupervised.

6.1.4. After all upgrade training requirements are completed, supervisors and Unit Education and Training Managers (UETMs) coordinate upgrade procedures.

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

6.2. Journeyman (5-Level).

6.2.1. Enter into continuation training to broaden experience base.

6.2.2. 5-Levels may be assigned job positions such as team leader, shift supervisor, scheduler, programmer, work order priority program monitor, and quality assurance evaluator.

6.2.3 5-Levels may be assigned to units other than Civil Engineering to perform duties as CE liaison.

6.2.4. Will attend the Airman Leadership School (ALS) after serving 48 months in the Air Force (active duty only). Either the in-residence or correspondence course is required for Air Reserve Component (ARC) personnel.

6.2.5. Will use CDCs and other reference material to prepare for Weighted Airman Performance Systems (WAPS) testing.

6.2.6. Should continue pursuing a CCAF degree.

6.2.7. After all upgrade training requirements are complete, supervisors and UETMs coordinate upgrade procedures.

6.3. Craftsman (7-Level).

6.3.1. Completion of Read-Ahead Material (RAM), 100% core/diamond task completion, and resident graduation from the 7-level resident course are basic prerequisites for award of the 7-level.

6.3.2. A craftsman may be assigned job positions such as NCOIC/Chief of Utilities Systems, self-help manager, chief of service contracts, NCOIC of command and control, zonal manager, NCOIC/Chief of customer service and various unit or staff positions.

6.3.3. Seven-levels should take continuation training courses or obtain additional knowledge on management of resources and personnel.

6.3.4. Continued academic education through CCAF and higher degree programs is encouraged.

6.3.5. Will attend the Noncommissioned Officer Academy (NCOA) after promotion to TSgt (active duty only). Either the in-residence or correspondence course is required for ARC personnel.

6.3.6. After all upgrade training requirements are complete, supervisors and UETMs coordinate upgrade procedures.

6.4. Superintendent (9-Level).

6.4.1. A 9-level can be expected to fill positions such as flight chief, superintendent of zones, infrastructure, maintenance engineering, heavy repair, facility maintenance, and various staff positions.

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

6.4.3. Recommend the pursuit of additional higher education and completion of courses outside of their career AFS.

6.5. Civil Engineer Manager.

6.5.1 Must be selected for CMSgt and possess qualifications in a feeder specialty (3E090, 3E191, 3E291, 3E391, 3E490, 3E591, or 3E691).

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

6.5.3. Resident graduation of the USAF Senior NCO Academy (SNCOA) is a prerequisite for CMSgt sew-on (active duty only). In residence or correspondence course required for ARC personnel.

7. Training Decisions. The CFETP uses a building block approach (simple to complex) to encompass the entire spectrum of training requirements for the Utilities Systems career field. The spectrum includes a strategy for when, where, and how to meet the training requirements. The strategy must be apparent and affordable to reduce duplication of training and eliminate a disjointed approach to training. The following decisions were made at the career field Utilization & Training Workshop (U&TW) held at Sheppard AFB TX in May 1999.

7.1. Initial Skills Training. The initial skill course was reviewed for content. Additions, deletions, and modifications were made to the course. Wartime training tasks were identified. Additional contingency training was also identified.

7.2. Five-Level Upgrade Training Requirements. A mandatory 5-level CDC will be developed and implemented October 2002.

7.3. Seven-Level Upgrade Training Requirements. Seven-level training requirements were reviewed. The mandatory 7-level CDCs were deactivated October 1999.

7.4. Proficiency Training.

7.4.1. Any additional knowledge and skill requirements that were not taught through initial skills or upgrade training are assigned as continuation training.

7.4.2. Purpose of continuation training is to provide training exceeding minimum upgrade training requirements with emphasis on present and future duty positions.

7.4.3. MAJCOMs must develop a continuation training program that ensures individuals in the Utilities Systems career field receive the necessary training at the appropriate point in their careers.

7.4.4. The training program will identify both mandatory and optional training requirements.

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

7.6. **CerTest.** Originally, the CerTest program was developed to support transition training, and meet DoD certification requirements. Now, it is also the sole platform to present AFQTP tests and supplement the evaluation of OJT.

8. **Community College of the Air Force (CCAF) Academic Programs.** Airmen are automatically enrolled in CCAF upon completion of basic military training. CCAF provides the opportunity to obtain an Associates Degree in Applied Sciences. In addition to its associates degree program, CCAF offers the following:

8.1. **Occupational Instructor Certification.** Upon completion of instructor qualification training (consisting of the Instructor Methods course and supervised practice teaching), CCAF instructors possessing an associates degree or higher may be nominated by their school commander/commandant for certification as an occupational instructor.

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

8.3. **The Ecological Controls Associates Degree (3AKY)** applies to AFSC 3E4X1.

8.3.1. **Degree Requirements.** Prior to completing an Associates Degree, the individual must be awarded a 5-level and the following requirements must be met:

Course	Semester Hours
Technical Education.....	24
Leadership, Management, and Military	6

Physical Education.....	4
General Education.....	15
Program Elective.....	15
Technical Education; Leadership, Management, and Military Studies; or General Education	
Total.....	64

8.3.2. Technical Education (24 Semester Hours): A minimum of 12 semester hours of Technical Core subjects/courses must be applied and the remaining semester hours applied from Technical Core/Technical Elective courses.

Technical Core Requirements	Semester Hours
CCAF Internship	16
Environmental Support	20
Liquid Fuels Systems.....	20
Utilities Systems.....	20

Technical Electives	Semester Hours
Algebra-Based Physics	8
Biology	3
Blueprint Reading/Schematic Diagrams	6
Botany	4
Chemistry.....	3
Computer Science	6
Ecology	3
Electronics	3
Enlisted Professional Military Education	12
Environmental Awareness	3
Environmental Compliance	3
Fire-Suppression Systems.....	6
Hazardous Materials	6
Industrial Management	3
Industrial Safety	6
Microbiology.....	4
Natural Gas Distribution.....	6
Plant Disease and Pest Control	6
Pollution Prevention	3
Quality Assurance.....	3
Technical Math (College Algebra or Higher).....	3
Technical Writing	3
Welding and Pipefitting	6

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

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

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

General Education	Semester Hours
Oral Communication	3
Speech	
Written Communication.....	3
English Composition	
Mathematics.....	3
An intermediate algebra or a college-level mathematics course that satisfies the delivering institution's mathematics requirement for graduation. If an acceptable mathematics course is used as a Technical or Program Elective, a natural science course may be substituted 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, religion	

8.3.6. Program Elective (15 Semester Hours). Courses applicable to the technical education, Leadership, Management, and Military Studies (LMMS); or general education requirements. Natural science courses meet general education requirement application criteria. Foreign language credit earned at the Defense Language Institute or through the Defense Language Proficiency Test. A maximum of six (6) semester hours of CCAF-degree applicable technical course credit otherwise not applicable to this program of enrollment. See the CCAF General Catalog for details regarding the Associates of Applied Science for this specialty.

9. Additional off-duty education is a personal choice that is encouraged for all. Individuals desiring to become an Air Education and Training Command (AETC) Instructor should actively pursue an Associates Degree. A qualified faculty is necessary to maintain accreditation through the Southern Association of Colleges and Schools.

10.1 Enlisted Career Path.

Table: Enlisted Career Path				
Education and Training Requirements	GRADE REQUIREMENTS			
	Rank	Average Sew-On	Earliest Sew-On	High Year Of Tenure (HYT)
Basic Military Training school				
Apprentice Technical School (3-Skill Level)	Amn A1C	6 months 16 months		
Upgrade To Journeyman (5-Skill Level) -- Complete all core and duty-related tasks identified in CFETP. - Minimum 15 months on-the-job training (9 months for retrainees) - Complete appropriate CDC if/when available.	SrA	3 years	28 months	10 Years
Airman Leadership School (ALS) - Must be a SrA with 48 months time in service or be a SSgt Selectee. - Resident graduation is a prerequisite for SSgt sew-on (Active Duty Only).	<u>Trainer</u> - Trainer must be qualified and certified on tasks to be trained. - Must attend formal AF Training Course and be appointed by Commander in writing.			
Upgrade To Craftsman (7-Skill Level) - Complete all core and duty-related tasks identified in CFETP. - Minimum rank of SSgt - 12 months OJT (12 months for retrainees) - Complete appropriate CDC if/when available. - Attend 7-level Craftsman Course (may attend prior to completion of 12 months UGT; however, must complete Read-Ahead Material (RAM) prior to attending.	SSgt	6 years	3 years	20 Years
Retrainee - Minimum 9 months for 5-level - Minimum 12 months for 7-level UGT	<u>Certifier</u> - SSgt with 5-skill level or civilian equivalent. - Attend formal AF Certifier Course and appointed by Commander in writing. - Be a person other than the trainer (for core and critical tasks only).			
Noncommissioned Officer Academy (NCOA) - Must be a TSgt or TSgt Selectee - Resident graduation is a prerequisite for MSgt sew-on (Active Duty Only).	TSgt	13 years	5 years	20 Years
	MSgt	16 years	8 years	24 Years
Upgrade To Superintendent (9-Skill Level) - Minimum rank of SMSgt	SMSgt	20 years	11 years	26 Years
Civil Engineer Manager (CEM) -USAF Senior NCO Academy (SNCOA) resident graduation is a prerequisite for CMSgt sew-on (Active Duty Only)	CMSgt	22 years	14 years	30 years

10.2. 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), on the AFEPL, Air Force Electronic Publications Library (AFEPL).

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

10.2.1.1. Basic Badge. The basic badge is awarded upon successful completion of the apprentice course.

10.2.1.2. Senior Badge. The senior badge adds a star to the top of the badge. This is awarded after the member successfully completes the 7-level awarding course.

10.2.1.3. Master Badge. The master badge adds a wreath around the star. It's awarded to master sergeant or above with 5 years in the specialty from award of the 7-skill level.

SECTION C – SKILL-LEVEL TRAINING REQUIREMENTS

11. Purpose. The various skill levels in the career field are defined in terms of tasks and knowledge requirements for the Utilities Systems career ladder. They are stated in broad, general terms and establish the standards of performance. An all-encompassing core task list has been developed for this specialty because of the diversity of the missions supported and the equipment installed to meet mission requirements. Core tasks, knowledge items, and skill requirements for this specialty are identified in the STS. Completion of the mandatory 3-level awarding course, the mandatory completion of CDCs, the mandatory completion of applicable AFQTPs and CerTests, and the mandatory 7-level Craftsman course, comprise Air Force requirements.

12. Skill-Level Training Requirements

12.1. Apprentice (3-Level) Training Requirements.

12.1.1. Specialty Qualifications.

12.1.1.1. Knowledge. Completion of the Utilities Systems Apprentice course satisfies this mandatory requirement.

12.1.1.2. Education. Completion of high school or General Education Development (GED) is mandatory for entry into this AFS. Courses in mathematics and English composition are mandatory. Chemistry, biology, earth sciences, drawing and specification use, and shop mechanics are desirable.

12.1.1.3. Training. Completion of the Utilities Systems Apprentice course, J3ABR3E431-008, Sheppard AFB TX, is mandatory for award of this skill level.

12.1.1.4. Experience. N/A

12.1.1.5. Other.

12.1.1.5.1. Qualification to operate government vehicles according to AFI 24-301, Vehicle Operations.

12.1.1.5.2. Normal color vision as defined in AFMAN 48-123, Medical Examination and Standards.

12.1.2. Training Sources/Resources.

12.1.2.1. Formal training is accomplished through course J3ABR3E431-008, Utilities Systems Apprentice at Sheppard AFB TX.

12.1.2.2. The COL (Part II, Section B of this CFETP) identifies all the knowledge and tasks, with their respective standards.

12.1.2.3. When applicable, AFQTPs and associated CerTests are mandatory for use during UGT/QT on all core tasks, critical tasks, and diamond (◆) tasks.

12.1.3. Implementation.

12.1.3.1. The 3-skill level is awarded upon graduating the Utilities Systems Apprentice course.

12.2. Journeyman (5-Level) Training Requirements.

12.2.1. Specialty Qualification. Entry into 5-level upgrade training is initiated after the individual has completed the 3-level school. All 3-level qualifications apply to 5-level requirements.

12.2.1.1. Knowledge. Knowledge of the following is mandatory:

12.2.1.1.1. Nomenclature, types, sizes, and uses of plumbing materials such as pipes, valves, fittings, metals, caulking, packing, and gaskets.

12.2.1.1.2. Shop mathematics.

12.2.1.1.3. Reading and interpreting drawings and specifications.

12.2.1.1.4. Contingency water and waste water operations, maintenance of water and waste collection systems.

12.2.1.1.5. Corrosion prevention.

12.2.1.1.6. Military and commercial publications.

12.2.1.1.7. Environmental regulations.

12.2.1.2. Education. N/A

12.2.1.3. Training.

12.2.1.3.1. Completion of CDCs is mandatory.

12.2.1.3.2. Certification of all 5-level core tasks identified with a single asterisk (*) in the core task column of the STS is mandatory.

12.2.1.3.3. Completion of AFQTPs for assigned core tasks and contingency war diamond (◆) tasks is mandatory.

12.2.1.3.3. Completion of CerTests for all contingency war diamond (◆) tasks with a minimum of 80% is mandatory.

12.2.1.3.4. Certification of duty position requirements identified by the supervisor is mandatory.

12.2.1.4. Experience.

12.2.1.4.1. Qualification in and possession of 3-skill level.

12.2.1.4.2. Minimum 15 months on-the-job training (9 months for re-trainees) before award of 5- skill level.

12.2.1.4.3. Functions such as operation, maintenance, and repair of plumbing, water and waste water systems, and water quality testing and analysis.

12.2.2. Training Sources/Resources.

12.2.2.1. CDC 3E451, Utilities Systems Journeyman.

12.2.2.2. The STS (Part II, Section A of the CFETP) identifies all core tasks required for qualification in the individual's duty position.

12.2.2.3. Qualified trainers provide upgrade and qualification training for duty positions, managed programs, and/or equipment to be used.

12.2.2.4. A variety of AFQTPs and Commercial Off-the-Shelf (COTS) products.

12.2.3. Implementation.

12.2.3.1. Entry into formal Journeyman upgrade training is accomplished after individuals are assigned to their first duty station.

12.2.3.2. Qualification training is initiated any time individuals are assigned duties they are not certified to perform.

12.2.3.3. AFQTPs are used concurrently to obtain necessary duty position qualifications.

12.3. Craftsman (7-Level) Training Requirements.

12.3.1. Specialty Qualification. All 5-level qualifications apply to 7-level requirements.

12.3.1.1. Knowledge. All 5-level qualifications apply to 7-level requirements.

12.3.1.2. Education.

12.3.1.2.1. To assume the grade of SSgt, individuals must successfully complete the in-resident Airman Leadership School (active duty only).

12.3.1.2.2. To assume the grade of MSgt, individuals must successfully complete the in-resident NCO Academy (active duty only).

12.3.1.2.3. For ANG/AFRC, completion of Air Force Institute for Advanced Distributive Learning (AFIADL) courses 00001 (ALS) and 00006 D&E (NCO Academy) satisfy the requirements.

12.3.1.3. Training.

12.3.1.3.1. Completion of 7-level Read Ahead Material (RAM) for course J3ACR3E070-000 is mandatory prior to attendance at the resident course.

12.3.1.3.2. Completion of in-residence CE Management Craftsman Course J3ACR3E070-000 is mandatory. Exception: Fire, EOD, and Readiness.

12.3.1.3.3. Certification of all 5- and 7-skill level core tasks identified with a single asterisk (*) and double asterisk (**) in the core column of the STS is mandatory.

12.3.1.3.4. Completion of all AFQTPs for assigned core and critical tasks.

12.3.1.3.5. Completion of CerTests for all diamond (◆) tasks with a minimum of 80% is mandatory.

12.3.1.4. Experience.

12.3.1.4.1. Qualification in and possession of a 5-level.

12.3.1.4.2. Performing or supervision functions such as operation, maintenance, and repair of plumbing, water and waste water systems, and water quality testing and analysis.

12.3.1.5. Other. N/A

12.3.2. Training Sources/Resources.

12.3.2.1. CE Management Craftsman Course Read Ahead Material (RAM).

12.3.2.2. Course J3ACR3E070-000, CE Management Craftsman.

12.3.2.3. NCO Academy Course 00006 D&E (paper-based correspondence).

12.3.2.4. The STS (Part II, Section A of this CFETP) identifies all core tasks required for qualification in the individual's duty position.

12.3.2.5. Qualified trainers provide upgrade and qualification training for duty positions, managed programs, and/or equipment to be used.

12.3.2.6. A variety of AFQTPs and COTS products.

12.3.3. Implementation.

12.3.3.1. Entry into 7-level training is initiated when an individual is selected for SSgt and has fulfilled all 5-level requirements.

12.3.3.2. Qualification training is initiated any time an individual is assigned duties that they are not qualified to perform.

12.3.3.3. AFQTPs are used concurrently to obtain necessary duty position qualifications.

12.4. Superintendent (9-Level) Training Requirements.

12.4.1. Specialty Qualification.

12.4.1.1. Knowledge. Knowledge of the following is mandatory:

12.4.1.1.1. Air Force training programs.

12.4.1.1.2. CE policies, practices, and procedures of base maintenance and operations, crafts, facilities, equipment, and systems.

12.4.1.1.3. Interpretation and application of maintenance and work force management.

12.4.1.2. Education.

12.4.1.2.1. Completion of in-residence Senior NCO Academy is mandatory (active duty only) prior to award of 9-skill level.

12.4.1.2.2. ANG/AFRC must complete AFIADL course 00005 (computer-based CD-ROM) to satisfy the Senior NCO Academy requirement.

12.4.1.3. Training. Completion of duty position training requirements.

12.4.1.4. Experience.

12.4.1.4.1. Qualification in and possession of 7-skill level is mandatory.

12.4.1.5. Other. N/A

12.4.2. Training Sources/Resources.

12.4.2.1. In-residence SNCO Academy located at Maxwell AFB - Gunter Annex AL.

12.4.2.2. SNCO Academy Course 00005 (exportable computer-based CD ROM).

12.4.3. Implementation.

12.4.3.1. Entry into 9-level training is initiated when an individual is selected for SMSgt and is a fully qualified 7-level.

12.4.3.2. QT is initiated any time an individual is assigned duties they are not qualified to perform.

12.5. Civil Engineer Manager.

12.5.1. Specialty Qualification.

12.5.1.1. Knowledge. Knowledge of the following is mandatory:

12.5.1.1.1. Managing and directing personnel resource activities.

12.5.1.1.2. Interpreting and enforcing policy and applicable directives.

12.5.1.1.3. Establishing control procedures to meet work goals and standards.

12.5.1.1.4. Recommending or initiating actions to improve operational efficiency.

12.5.1.1.5. Planning and programming work commitments and schedules.

12.5.1.1.6. Developing plans regarding facilities, supplies, and equipment procurement and maintenance.

12.5.1.2. Education. Must be a resident graduate of SNCOA (active duty only).

12.5.1.3. Training. N/A

12.5.1.4. Experience.

12.5.1.4.1. Possess qualifications in feeder specialty (3E490) prior to award of Civil Engineer Manager code 3E000.

12.5.1.4.2. Managerial ability to plan, direct, coordinate, implement, and control a wide range of work activity.

12.5.1.5. Other. N/A

12.5.2. Training Sources and Resources. N/A

12.5.3 Implementation. Entry into Civil Engineer Manager code 3E000 is initiated when an individual is selected for CMSgt and possesses qualifications in a feeder specialty (3E090, 3E191, 3E291, 3E391, 3E490, 3E591, and 3E691).

SECTION D - RESOURCE CONSTRAINTS

3E4X1 – Utilities Systems

13. Purpose. This section identifies known resource constraints that preclude optimal/desired training from being developed or conducted.

13.1. Apprentice (3-Level) Training

13.1.1. Equipment Constraints: N/A

13.1.2. Time/Manpower/Student Manyears Constraints: N/A

13.1.3. Facilities Constraints: N/A

13.1.4. Funding Constraints: N/A

13.1.5. Exportable Training: N/A

13.1.6. Proficiency Training: N/A

13.1.7. Action Required. Revise curriculum to meet all training requirements and proficiency codes identified in this CFETP.

13.1.8. OPR/Target Completion Date. 366 TRS will implement revised training with class beginning 05 August 2002.

13.2. Journeyman (5-Level) Training. AFQTP development for all core tasks.

13.2.1. Constraints. None

13.2.2. OPR. HQ AFCESA/CEOF

13.3. Craftsman (7-Level) Training. AFQTPs

13.3.1. Constraints. None.

13.3.2. OPR. HQ AFCESA/CEOF

13.4. Superintendent (9-Level) Training. No Constraints.

SECTION E - TRANSITION TRAINING GUIDE

14. No transition training requirements at this time. This area is reserved.

PART II

SECTION A - SPECIALTY TRAINING STANDARD

1. Implementation. This STS will be used to identify technical training provided by AETC for the 3-level Utilities Systems Apprentice course with classes beginning 05 August 2002, and graduating 15 October 2002.

2. Purpose. As prescribed in AFI 36-2201, this STS:

2.1. Lists in Column 1 (*Tasks, Knowledge, and Technical Reference*) the most common tasks, knowledge, and Technical References (TRs) necessary for airmen to perform duties in the 3-, 5-, and 7-skill level.

2.2. Column 2 (*Core Tasks*) identifies core tasks (specialty-wide training requirements) by an asterisk (*) for 5- and 7- skill levels or a double asterisk (**) for 7-skill level only. **As a minimum, trainees must complete all core and critical tasks for skill-level upgrade.**

2.2.1. All tasks in the 3 level 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.

2.2.2. Tasks identified by a diamond (◆) in column 2 are extremely important to the career field. Equipment shortfalls at most locations however, have created problems with the actual hands-on certification of these tasks. In instances where required equipment is not available for instruction, completion of the task's AFQTP and passing the corresponding CerTest is all that is required for upgrade and qualification training.

2.3. Provides certification for OJT. Columns 3A, B, C, D, and E are used to record completion of tasks and knowledge training requirements. If available, use automated training management systems to document technician qualifications. Task certification of core and critical tasks requires 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.

2.4. Shows formal training and correspondence course requirements. Columns 4A, B, and C show 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 the initial skills training course, correspondence course, and read-ahead material. See CADRE/AFSC/CDC listing maintained by the unit training manager for current CDC listings.

2.5. Identifies qualitative requirements. Attachment 1 contains the *Proficiency Code Key* used to indicate the level of training and knowledge provided by resident training and career development courses

2.6. Becomes a Job Qualification Standard (JQS) for on-the-job training when placed in AF Form 623, Individual Training Record, and used according to AFI 36-2201. When used as a JQS, the following requirements apply:

2.6.1. Documentation. Document and certify completion of training.

2.6.1.1. Identify current duty position requirements by circling the subparagraph number or letter next to the task statement. Additionally, all core and diamond (◆) tasks should be circled. Document task completion by annotating columns 3A, 3B, 3C, and 3D. **NOTE:** All entries shall be made in pencil.

2.6.1.2. Enter the start date of the AFQTP on the AFQTP documentation record. Once completed enter the completion date. When **hands-on** training is started and completed annotate the STS accordingly.

2.6.1.3. Transcribing from old document to CFETP. Use the new STS to identify and certify all current and past task qualifications.

2.6.1.3.1. For tasks previously certified and still required in the current duty position:

2.6.1.3.1.1. For core and critical tasks, the trainer and certifier evaluate the airman's current qualifications and validate airman's ability to complete the task. The certifier and trainee then enter their initials and new certified date.

2.6.1.3.1.2. For non-core duty position tasks, the trainer evaluates the airman's current qualifications and validates the airman's ability to complete the task. The trainer and trainee then enter their initials in columns 3D and 3C respectively and the current date is entered in column 3B.

2.6.1.3.2. To transcribe previous certification for tasks not required in the current duty position, carry forward only the previous completion dates (not the initials of another person). If and when these tasks become a duty position requirement, re-certify with current date and certifier, trainer, and trainee's initials.

2.6.1.4. Documenting Career Knowledge. When a CDC is not available, the supervisor identifies STS training references that the trainee requires for career knowledge and ensures, as a minimum, that trainees cover all mandatory items specified in AFMAN 36-2108, Enlisted Classification. For two-time CDC exam failures, supervisors identify all STS items corresponding to the areas covered by the CDC. The trainee completes a study of STS references, undergoes evaluation by the task certifier, and receives certification on the STS. **NOTE:** Career knowledge must be documented prior to submitting a CDC waiver.

2.6.1.5. De-Certification and Re-Certification. When an airman is found to be unqualified on a task, the supervisor shall erase previous certification and enter airman into qualification training. Appropriate remarks are entered on the AF Form 623a, On-The-Job Training Record Continuation Sheet, as to the

reason for de-certification. The individual is re-certified using the normal certification process.

2.6.2. 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. Local requirements for accuracy, timeliness, and use of procedures shall be applied accordingly.

2.7. Is a guide for development of promotion tests used in the Weighted Airman Promotion System (WAPS). Senior NCOs with extensive practical experience in their career fields develop Specialty Knowledge Tests (SKTs) at the USAF Occupational Measurement Squadron. 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 WAPS catalog. Individual responsibilities are in Chapter 14 of AFI 36-2606, United States Air Force Reenlistment, Retention, and NCO Status Programs. WAPS is not applicable to the Air National Guard or Air Reserve Forces.

3. 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/TTS, 620 9th Avenue, Suite 3, Sheppard AFB TX 76311-2368 or E-mail 782d csil@sheppard.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.

BY ORDER OF THE SECRETARY OF THE AIR FORCE

OFFICIAL

EARNEST O. ROBBINS II, Maj Gen, USAF
The Civil Engineer
DCS/Installations and Logistics

4 Attachments

1. Qualitative Requirements
2. 3-, 5-, and 7-level career field training requirements
3. General Contingency Requirements
4. AFQTP Documentation Record

THIS BLOCK IS FOR IDENTIFICATION PURPOSES ONLY

NAME OF TRAINEE

PRINTED NAME *(Last, First, Middle Initial)*

INITIALS *(Written)*

SSN

PRINTED NAME OF CERTIFYING OFFICIAL AND WRITTEN INITIALS

N/I	N/I

QUALITATIVE REQUIREMENTS

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 help only on hardest parts. (PARTIALLY PROFICIENT)
	3	Can do all parts of the task. Needs only a spot check of completed work. (COMPETENT)
	4	Can do the complete task quickly and accurately. Can tell or show others how to do the task. (HIGHLY PROFICIENT)
*TASK KNOWLEDGE LEVELS	a	Can name parts, tools, and simple facts about the task. (NOMENCLATURE)
	b	Can determine step by step procedures for doing the task. (PROCEDURES)
	c	Can identify why and when the task must be done and why each step is needed. (OPERATING PRINCIPLES)
	d	Can predict, isolate, and resolve problems about the task. (ADVANCED THEORY)
**SUBJECT KNOWLEDGE LEVELS	A	Can identify basic facts and terms about the subject. (FACTS)
	B	Can identify relationship of basic facts and state general principles about the subject. (PRINCIPLES)
	C	Can analyze facts and principles and draw conclusions about the subject. (ANALYSIS)
	D	Can evaluate conditions and make proper decisions about the subject. (EVALUATION)

EXPLANATIONS

- * 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. (Examples: 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.
- X This mark is used alone in course columns to show that training is required but not given due to limitations in resources.

Note 1: Underlined training references are commercial publications or other publications essential for enlisted specialty training and mission accomplishment.
Note 2: Task knowledge gained at Basic Military Training (BMT) will not be repeated during resident training.
Note 3: Prior to attending the J3ACR3E070-000, Civil Engineer Management Craftsman resident course, all personnel must successfully complete the 7-level Read-Ahead Material (RAM). Personnel must present RAM test results upon arrival.
Note 4: AFQTPs are provided through multiple delivery systems (paper-based, CD-ROM, or video). Completion is required for upgrade or qualification. Access AFCESA's homepage (www.afcesa.af.mil) for the most current AFQTPs.
Note 5: Annotate AFQTP completion on the AFQTP Documentation Record (Attachment 4). The AFQTP Documentation Record is used to track knowledge training only. Annotate the STS only when hands-on is started and completed.
Note 6: In addition to completing the AFQTP Documentation Record, for ease of reference, you may place an "X" in column "4B(2)-QTP" to denote AFQTP completion.

1. Task Knowledge and Technical References	2. Core Tasks	3. Certification for OJT					4. Proficiency Codes Used To Indicate Training / Information Provided					
		A	B	C	D	E	A 3 Skill Level		B 5 Skill Level		C 7 Skill Level	
		Tng Start	Tng Complete	Trainee Initials	Trainer Initials	Certifier Initials	(1) Course	(2)	(1) CDC	(2) QTP	(1) RAM	(2) Course
1. CE ORGANIZATION AND CAREER FIELD STRUCTURE TR: AFDD 2-4.2; AFIs 10-209, 10-210, 10-211, 32-1001, 32-1022, 36-2101, 38-101, 51-903; AFMAN 36-2108; AFPAM 32-1004 Vols 1-6; War & Mobilization Plan (WMP)-1, Annex S												
1.1. Base Civil Engineer (BCE) structure						A		B				
1.2. Progression in career ladder						A		B				
1.3. Duties and responsibilities												
1.3.1. Peacetime						A						
1.3.2. Contingency						A						
1.4. Functions of:												
1.4.1. BCE						A		B		B		
1.4.2. Prime BEEF						A		B		B		
1.4.3. RED HORSE						A		B		B		
1.4.4. HQ ANG/AFRC						A		B		B		
1.5. Resources												
1.5.1. Assess manpower requirements										b	3c	
1.5.2. Identify budget requirements										b	3c	
1.5.3. Determine equipment requirements										b	3c	
1.5.4. Use Allowance Standards (AS)										b	3c	
1.5.5. Research, Development, and Acquisition (RD&A) TR: DoDD 5000.1												
1.5.5.1. Process											B	
1.5.5.2. Unit responsibilities											B	
1.5.5.3. Major command responsibilities											B	
1.5.6. Assess vehicle requirements										b	1b	
1.5.7. Requesting contract services										B	2c	

1. Task Knowledge and Technical References	2. Core Tasks	3. Certification for OJT					4. Proficiency Codes Used To Indicate Training / Information Provided					
		A	B	C	D	E	A 3 Skill Level		B 5 Skill Level		C 7 Skill Level	
		Tng Start	Tng Complete	Trainee Initials	Trainer Initials	Certifier Initials	(1) Course	(2)	(1) CDC	(2) QTP	(1) RAM	(2) Course
1.5.8. Requesting Simplified Acquisition of Base Engineering Requirements (SABER) contract											B	C
1.5.9. Management Equipment Evaluation Program (MEEP)												
2. SPECIFIC OPSEC VULNERABILITIES TR: AFI 10-1101						A						
3. PRACTICE COMPUTER SECURITY TR: AFSSI 5100						A				A	1b	
4. SUPERVISION TR: AFMAN 36-2108; AFIs 36-2201; DoDD 5500-7												
4.1. Orient new personnel											b	
4.2. Assign personnel to work crew											b	
4.3. Coordinate work assignments											b	
4.4. Schedule work assignments and priorities											b	
4.5. Establish:												
4.5.1. Work methods											b	
4.5.2. Controls											b	
4.5.3. Performance standards											b	
4.6. Evaluate work performance of subordinate personnel											b	
4.7. Resolve technical problems for subordinate personnel											b	
4.8. Direct projects											b	2b
5. TRAINING TR: AFIs 36-2101, 36-2201; AFMAN 36-2108; Air Force Education and Training Course Announcements (ETCA)												
5.1. Evaluate personnel to determine need for training								b			b	3c
5.2. Enlisted specialty training supervision												
5.2.1. Prepare job qualification standards											b	3c
5.2.2. Conduct training											b	3c
5.2.3. Counsel trainees on their progress											b	3c
5.2.4. Monitor training effectiveness												
5.2.4.1. Career knowledge								a			b	3c
5.2.4.2. Job proficiency upgrade								a			b	3c
5.2.4.3. Qualification								a			b	3c
5.3. Maintain training records								a			b	3c
5.4. Evaluate training programs effectiveness											b	3c

1. Task Knowledge and Technical References	2. Core Tasks	3. Certification for OJT					4. Proficiency Codes Used To Indicate Training / Information Provided					
		A	B	C	D	E	A 3 Skill Level		B 5 Skill Level		C 7 Skill Level	
		Tng Start	Tng Complete	Trainee Initials	Trainer Initials	Certifier Initials	(1) Course	(2)	(1) CDC	(2) QTP	(1) RAM	(2) Course
5.5. Recommend people for training											a	b
5.6. AETC training management system (Training Allocation)									A		A	B
5.7. Managing Certification and Testing (CerTest)						A			B			B
5.8. National/DoD Certification requirements									A		A	B
5.9. AFQTP Requirements											B	
6. ENVIRONMENTAL AWARENESS AND COMPLIANCE TR: AFIs 32-4002, 32-7045, 32-7061; Chemicals in Your Community (EPA 550-K-93-003); EO 12856												
6.1. Environmental Compliance Assessment Management Program (ECAMP)							A		B		B	
6.2. National Environmental Policy Act (NEPA)							A		B		B	
6.3. Environmental Impact Analysis Process (EIAP)							A		B		B	
6.4. Emergency Planning and Community Right to Know Act (EPCRA)							A		B		B	
7. CE MANAGEMENT TR: AFI 32-1031, 32-1022; AFPAMs 32-1004 v.1, 32-1098; AFMAN 23-110												
7.1. Customer relationships							A		B		B	
7.2. Work identification and authorization									A		B	
7.3. Plan work requirements									a		b	2b
7.4. Plan logistics support (CEMAS, BOM)									a		b	2b
7.4.1. IMPAC Program											A	B
7.5. Maintain recurring work program									a		b	2b
7.6. Scheduling/time accounting									A		B	2b
7.7. Warranty and Guarantee Program									A		B	
7.8. Property Accountability									B			B
7.9. Base Comprehensive Plan											A	
7.10. Legal limits									A			
7.11. Mark "As Built " Drawings											a	2b
7.12. Reimbursements procedures									A		B	
7.13. CE Specific Automated Systems (Computer) Capability												
7.13.1. Perform inputs									a		b	2b
7.13.2. Maintain files									a		b	2b
7.13.3. Develop automated reports									a		b	2b

1. Task Knowledge and Technical References	2. Core Tasks	3. Certification for OJT					4. Proficiency Codes Used To Indicate Training / Information Provided					
		A	B	C	D	E	A 3 Skill Level		B 5 Skill Level		C 7 Skill Level	
		Tng Start	Tng Complete	Trainee Initials	Trainer Initials	Certifier Initials	(1) Course	(2)	(1) CDC	(2) QTP	(1) RAM	(2) Course
7.13.4. Extract automated reports									a		b	2b
7.13.5. Perform automated data analysis									a		b	2b
7.14. Host Tenant and Interservice Agreements											A	
7.15. Civil Engineer Civilian Management											B	C
8. COMMUNICATIONS TR: AFI 33-106; AFJMAN 24-306												
8.1. Use radios							b					
8.2. Use hand signals							b					
8.3. Identify airdrome signals							b					
9. AF OCCUPATIONAL SAFETY AND HEALTH (AFOSH) PROGRAM TR: AFPDs 91-2, 91-3; AFI 91-302; AFIND 17												
9.1. Supervisory responsibilities									B			
9.2. Hazardous materials waste handling							A		B			
9.3. Occupational Health & Environmental Controls - Lead TR: 29-CFR 1926.62; Working With Lead-based Paint: Facts and Information Applicable to Air Force Facilities							B					
9.4. Fire extinguisher training							A					
10. PUBLICATIONS TR: AFI 37-160 Vol I; AFINDs 2, 9												
10.1. Military							A		B			
10.2. Commerical							A		B			
10.3. Engineering Technical Letters (ETL)							A		B			
11. AFS SPECIFIC PUBLICATIONS TR: T.O.s 0-1-1, 0-1-20, 00-201, 00-5-2, 00-20-7												
11.1. Use indexes to locate numbers and titles of manuals, regulations, technical orders, and forms							a		b			
11.2. Locate desired information in												
11.2.1. Standard publications							a		b			
11.2.2. Technical orders							a		b			
11.2.3. Use technical publications to perform maintenance, operations, and troubleshooting							b		b			

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		Tng Start	Tng Complete	Trainee Initials	Trainer Initials	Certifier Initials	(1) Course	(2)	(1) CDC	(2) QTP	(1) RAM	(2) Course
12. AFS SPECIFIC HEALTH and SAFETY TR: AFPDs 91-2, 91-3; AFI 91-302; AFOSH 91-10, 91-32; AFIND 17												
12.1. Hazards of AFSC						A		B				
12.2. AFOSH Standards for AFSC						A		B				
12.3. Individual responsibilities						A		B				
12.4. Applying safety practices when working with:												
12.4.1. Electrical systems and equipment						1a		b				
12.4.2. Mechanical equipment						1a		b				
12.4.3. Flammables						A		B				
12.4.4. Chemicals and chemical solutions						A		A				
12.4.5. Test equipment						1a		A				
12.4.6. Mobile working platforms						a		A				
12.4.7. Electrical hand tools						1a		A				
12.4.8. Asbestos						a		A				
12.4.9. Confined space entries						1a		A				
12.4.10. Laboratory equipment						1a		A				
12.4.11. Excavations						a		A				
12.5. Remove victim from energized circuit						a		b				
12.6. Apply first aid procedures for shock						a		b				
12.7. Use warning forms						a						
12.8. Manual lifting awareness						A						
12.9. Environmental concerns						A						
12.10. Toxic and explosive gases						A		B				
12.11. Self contained breathing apparatus						A						
12.12. Initial Federal Hazard Communication Training Program (FHCTP) TR:DoD 6050.5-G 1; AFOSH 161-21; AFD 91-3; AFI 91-302						A						
13. PROJECT PLANNING TR: AFIs 32-1070; 32-1066; AFMAN 32-7004, 91-37; Uniform Plumbing Code												
13.1. Use building construction plans to identify:												
13.1.1. Installation procedure						a		b				
13.1.2. Materials needed						a		b				
13.1.3. Types of systems						a		b				
13.2. Prepare working sketches						1a		b				
13.3. Prepare and use AF Form 103, Work						1a		b				
13.4. Prepare bill of materials request						1a		b				
14. UTILITIES FUNDAMENTALS TR: <u>Uniform Plumbing Code Illustrated Manual; Water Distribution System Operation and Maintenance</u>												
14.1. Mathematics						A		B				
14.2. Biology						A		B				

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		Tng Start	Tng Complete	Trainee Initials	Trainer Initials	Certifier Initials	(1) Course	(2)	(1) CDC	(2) QTP	(1) RAM	(2) Course
14.3. Chemistry						A		B				
14.4. Water treatment						A		B				
14.5. Wastewater treatment						A		B				
14.6 Piping												
14.6.1 Measure	*					2b		b				
14.6.2 Cut	*					2b		b				
14.6.3 Ream	*					2b		b				
14.6.4 Thread	*					2b		b				
14.6.5 Sweat	*					2b		b				
14.7 Disinfect using chlorine						2b		B				
14.8. Locate valves using:												
14.8.1. Utility maps						a		B				
14.8.2. Electronic equipment						a						
15. WATER SYSTEMS TR: AFJMAN 32-1072; Uniform Plumbing Code / Ken Kerri, Water Distribution System Operation and Maintenance												
15.1. Fundamentals of water distribution						A		B				
15.2. Locating distribution components						A		B				
15.3. Operation of water systems												
15.3.1. Water softeners						A		B				
15.3.2. Wells						A		B				
15.3.3. Booster stations						A		B				
15.3.4. Storage tanks						A		B				
15.3.5. Chemical feeders						A		B				
15.3.6. Metering equipment						A		B				
15.3.7. Generators						A						
15.4. Install Water System Components												
15.4.1. Fire Hydrants						a		b				
15.4.2. Tap water main						a		b				
15.4.3. Structural openings						2b		b				
15.4.4. Steel Pipe						2b		b				
15.4.5. Plastic Pipe						2b		b				
15.4.6. Copper tubing						2b		b				
15.4.7. Pipe hangers/supports						2b		b				
15.4.8. Compression couplings						a		b				
15.4.9. Clamps						2b		b				
15.5. Inspect Water System Components:												
15.5.1. Perform pressure test						2b		b				
15.5.2. Identify causes for pressure loss						b		b				
15.5.3. Locate leaks						2b		b				
15.5.4. Corrosion						a		a				
15.5.5. Perform area flow test						1a		b				
15.5.6. Fire hydrants						1a		b				
15.6. Maintain Water System Components:												
15.6.1. Winterize piping system						1a		b				
15.6.2. Thaw frozen pipes using:												
15.6.2.1. Heaters						a		B				
15.6.2.2. Torches						a		B				
15.6.2.3. Electrical thawers						a		B				

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		Tng Start	Tng Complete	Trainee Initials	Trainer Initials	Certifier Initials	(1) Course	(2)	(1) CDC	(2) QTP	(1) RAM	(2) Course
15.7. Repair Water System Components:												
15.7.1. Piping												
15.7.1.1. Interior												
15.7.1.1.1. Steel						2b		b				
15.7.1.1.2. Plastic						2b		b				
15.7.1.1.3. Copper						2b		b				
15.7.1.2. Exterior												
15.7.1.2.1. Transite						a		b				
15.7.1.2.2. Ductile						2b		b				
15.7.1.2.3. Plastic						2b		b				
15.7.1.2.4. Steel						2b		b				
15.7.2. Fire hydrants						a		b				
16. SWIMMING POOL FUNDAMENTALS TR: AFR 91-26						A		B				
17. WASTEWATER SYSTEMS TR: AFMANs 32-1070, 88-11; Uniform Plumbing Code; MOP-11												
17.1. Fundamentals of collection												
17.1.1. Sanitary sewer						A		B				
17.1.2. Industrial waste						A		B				
17.1.3. Storm drains						A		B				
17.2. Fundamentals of sewage lift stations						A		B				
17.3. Install collection system components												
17.3.1. Cast iron pipe						2b		b				
17.3.2. Plastic pipe						2b		b				
17.4. Establish trench grade	*					2b		b				
17.5. Establish pipeline slope	*					2b		b				
17.6. Backfill trenches						b		b				
17.7. Drain excavations						a		b				
17.8. Inspect Wastewater Systems												
17.8.1. Leaks						a		b				
17.8.2. Infiltration/inflow						a		a				
17.8.3. Manholes						2b		b				
17.8.4. Grease traps						a						
17.9. Maintain Wastewater Systems												
17.9.1. Interior Wastewater Systems												
17.9.1.1. Open clogged or restricted drainage												
17.9.1.1.1. Plungers						1a						
17.9.1.1.2. Hand augers						2b		b				
17.9.1.1.3. Power augers	*					2b		b				
17.9.1.1.4. Chemicals						b		b				
17.9.2. Exterior Wastewater												
17.9.2.1. Open clogged or restricted drainage												
17.9.2.1.1. Power augers						2b		b				
17.9.2.1.2. Commercial jet rodders (trucks)						a		b				
17.10. Repair Wastewater System Piping												
17.10.1. Interior wastewater systems						2b						
17.11.2. Exterior wastewater systems						2b		b				

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		Tng Start	Tng Complete	Trainee Initials	Trainer Initials	Certifier Initials	(1) Course	(2)	(1) CDC	(2) QTP	(1) RAM	(2) Course
18. NATURAL GAS SYSTEM FUNDAMENTALS TR: AFMANs 88-12, 32-7004; AFIs 32-1069, 32-1054; <u>Uniform Plumbing Code</u>							A					
19. FIRE SUPPRESSION TR: <u>National Fire Protection Association Pamphlets / AFJAM 32-1059 / AFM 91-37</u>												
19.1. Inspect and test fire suppression												
19.1.1. Wet pipe systems							a		b			
19.1.2. Dry pipe systems							a		b			
19.1.1. Deluge systems							a		b			
19.1.4. Foam systems							a		b			
19.2. Repair Fire Suppression Systems												
19.2.1. Wet pipe systems							a		b			
19.2.2. Dry pipe systems							a		b			
19.2.3. Deluge systems							a		b			
19.2.2. Foam systems							a		b			
19.3. Maintain fire suppression systems												
19.3.1. Wet pipe systems							a		b			
19.3.2. Dry pipe systems							a		b			
19.3.3. Deluge systems							a		b			
19.3.4. Foam systems							a		b			
20. Backflow Prevention Devices TR: AFI32-1066; <u>Uniform Plumbing Code</u>												
20.1. Fundamentals							A		B			
20.2. Install Backflow Prevention Devices												
20.2.1. Air gap							a		b			
20.2.2. Atmospheric vacuum							1a		b			
20.2.3. Pressure type vacuum							1a		b			
20.2.4. Double check valves							1a		b			
20.2.5. Reduced pressure principle							a		b			
20.3. Inspect Backflow Prevention												
20.3.1. Air gap							a		b			
20.3.2. Atmospheric vacuum							a		b			
20.3.3. Double check valves							a		b			
20.3.4. Pressure type vacuum							a		b			
20.3.5. Reduced pressure principles devices							a		b			
20.4. Repair backflow prevention												
20.4.1. Pressure vacuum breakers							a		b			
20.4.2. Air gap							a		b			
20.4.3. Atmospheric							a		b			
20.4.4. Doublecheck valves							a		b			
20.4.5. Reduced pressure							a		b			

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21. ELECTRIC MOTORS TR: AFJMAN 32-1083; National Electric Code												
21.1. Basic electrical fundamentals						A		B				
21.2. Connect and disconnect motors						b		b				
21.3. Check for proper operation						b		b				
22. EQUIPMENT TR: AFIs 32-1066, 32-1070; AFMAN 32-7004, 91-37, 88-12; Uniform Plumbing Code												
22.1. Install												
22.1.1. Water heaters						2b		b				
22.1.2. Industrial food grinders						b		b				
22.1.3. Industrial ice makers								a				
22.1.4. Emergency Eye Wash / Shower						b		b				
22.1.5. Pumps												
22.1.5.1. Centrifugal						b		b				
22.1.5.2. Positive displacement						a		b				
22.2. Repair												
22.2.1. Water heaters						2b		b				
22.2.2. Industrial food grinder						a		b				
22.2.3. Emergency Eye Wash / Shower						b		b				
22.2.4. Pumps												
22.2.4.1. Centrifugal						2b		b				
22.2.4.2. Positive displacement						a		b				
22.3. Operate and maintain pumps												
22.3.1. Centrifugal						2b		b				
22.3.2. Positive displacement						a		b				
23. FIXTURES AND RELATED COMPONENTS TR: AFMANs 85-21, 32-1070, 88-12, 32-7004, 91-37; Uniform Plumbing Code												
23.1. Perform new Installation												
23.1.1. Lavatories						2b		b				
23.1.2. Water closets						2b		b				
23.1.3. Urinals						2b		b				
23.1.4. Showers						2b		b				
23.1.5. Industrial sinks						b		b				
23.1.6. Traps						2b		b				
23.1.7. Faucets						2b		b				
23.1.8. Mixing valves						2b		b				
23.1.9. Flushometers						2b		b				
23.1.10. Drinking fountains						2b		b				
23.1.11. Water Coolers						b		b				
23.2. Replace												
23.2.1. Lavatories	*					b		b				
23.2.2. Water closets	*					b		b				

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		Tng Start	Tng Complete	Trainee Initials	Trainer Initials	Certifier Initials	(1) Course	(2)	(1) CDC	(2) QTP	(1) RAM	(2) Course
23.2.3. Urinals						b		b				
23.2.4. Industrial sinks						b		b				
23.2.6. Traps						b		b				
23.2.7. Faucets						b		b				
23.2.8. Mixing valves						b		b				
23.2.9. Flushometers						b		b				
23.2.10. Drinking fountains						b		b				
23.2.11. Water Coolers						b		b				
23.3. Repair												
23.3.1. Water closet components	*					2b						
23.3.2. Traps	*					2b						
23.3.3. Faucets	*					2b						
23.3.4. Mixing Valves	*					2b						
23.3.5. Flushometers	*					2b						
24. VALVES TR: AFMANs 85-21, 32-1070, 88-12, 32-7004, 91-37; Uniform Plumbing Code												
24.1 Fundamentals of Valves						A		B				
24.2 Install valve boxes						a		b				
24.3 Inspect valves												
24.4.1. Check						a		b				
24.4.2. Globe						a		b				
24.4.3. Gate						a		b				

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24.4.4. Ball						a		b				
24.4.5. Altitude						a		b				
24.4.6. Pressure reducing						a		b				
24.4.7. Pressure relief						a		b				
24.4.8. Quick opening						a		b				
24.5. Inspect Valve boxes						a		b				
24.6. Replace valves												
24.6.1. Pressure relief						a		b				
24.6.2. Altitude						a		b				
24.6.3. Check	*					1a		b				
24.6.4. Globe						1a		b				
24.6.5. Gate	*					1a		b				
24.6.6. Ball						1a		b				
24.6.7. Pressure reducing						1a		b				
24.7. Repair Valves												
24.7.1. Pressure relief						a		b				
24.7.2. Altitude						a		b				
24.7.3. Check	*					1a		b				
24.7.4. Globe						1a		b				
24.7.5. Gate	*					1a		b				
24.7.6. Ball						1a		b				
24.7.7. Pressure reducing						1a		b				
24.8. Maintain Valves												
24.8.1. Lubricate						2b		b				
24.8.2. Packing						2b		b				
24.9. Maintain Valve boxes						a						
25. MAINTENANCE OF TOOLS AND EQUIPMENT TR: T.O.s 32-1-2, 32-1-101, 32-1-171; Manufacturers' Manuals												
25.1. Use of hand tools						A						
25.2. Care of hand tools						A						
25.3. Use of shop equipment						A						
25.4. Care of shop equipment						A						
25.5. Condition tags						A						
26. WATER TESTING TR: AFJMAN 32-1079; T.O.s 40W4-13-41, 40W4-14-1												
26.1. Collect samples	*					1a		b				
26.2. Perform water tests:												
26.2.1. pH	*					2b		b				
26.2.2. Chlorine residual	*					2b		b				

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		Tng Start	Tng Complete	Trainee Initials	Trainer Initials	Certifier Initials	(1) Course	(2)	(1) CDC	(2) QTP	(1) RAM	(2) Course
27. AFSC-SPECIFIC CONTINGENCY RESPONSIBILITIES TR: AFIs 10-210; 10- 211; 32-1026; 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; (Mar 95); AFPAM 10-219, Vol 2, 3, 4, & 5												
27.1. Expedient repair												
27.1.1. POL Distribution System Repair TR: AFIs 32-7005, 32-1065, 10-211, 10-410; AFPAM 10-219, Vol 2, 3 & 5; AFOSH STDs 48-22; 127-31; MIL STD 161; 127-40												
27.1.1.1. Expedient line repair techniques						A		B				
27.1.1.2. Main line blocking procedures						A		B				
27.1.1.3. Feeder to main line joining actions						A		B				
27.1.1.4. Rapid Utility Repair Kit 1 (RURK 1)						A		B				
27.1.1.5. Rapid Utility Repair Kit 2 (RURK 2)						A		B				
27.1.2. Storm drain system repair						A		B				
27.1.3. Heating line repair						A		B				
27.2. Expedient field construction												
27.2.1. Latrines												
27.2.1.1. Pit						A		B				
27.2.1.2. Straddle trench						A		B				
27.2.1.3. VIP						A		B				
27.2.1.4. Burnout						A		B				
27.2.1.5. Pail						A		B				
27.2.1.6. Mound						A		B				
27.2.2. Grease traps						A		B				
27.2.3. Waste Water Disposal TR: AFPAM 10-219, Vol 5; AFIs 10-210, 32-1054, 32-1066, 32-1067, 32-7041, 48-110, 36-2238; AFD 48-1; Army TM 5-654												
27.2.3.1. Urine soakage pit						A		B				
27.2.3.2. Oxidation lagoon						A		B				
27.2.3.3. Evaporation lagoon						A		B				
27.2.3.4. Septic tanks						A		B				
27.2.3.5. Piping						A		B				
27.2.3.6. Lift stations						A		B				
27.2.4. Sanitary Landfill												
27.2.4.1. Establishment						A		B				
27.2.4.2. Maintenance						A		B				

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27.3. Expedient beddown methods												
27.3.1. Harvest Eagle (HE) type assets												
27.3.1.1. HE water distribution system												
27.3.1.1.1. Operation principles							B		B			
27.3.1.1.2. Set up	◆						2b		b			
27.3.1.1.3. Troubleshooting	◆						2b		b			
27.3.1.1.4. Repairs	◆						2b		b			
27.3.1.2. Provide field laundry utility support												
27.3.1.2.1. Waste supply							A		B			
27.3.1.2.2. Waste water disposal							A		B			
27.3.2. Harvest Falcon (HF) type assets												
27.3.2.1. Temper tent erection												
27.3.2.1.1. Assembly							a					
27.3.2.1.2. Disassembly							b					
27.3.2.2. Provide HF/HE kitchen equipment												
27.3.2.2.1. Potable water supply							A		B			
27.3.2.2.2. Waste water disposal							A		B			
27.3.2.2.3. Grease trap requirements							A		B			
27.3.2.3. Liquid storage bladder erection							a		b			
27.3.2.4. Portable shower unit & shave stand PBU100												
27.3.2.4.1. Set up	◆						2b		b			
27.3.2.4.2. Perform operational tests	◆						2b		b			
27.3.2.4.3. Service/Periodic maintenance	◆						2b		b			
27.3.2.4.4. Troubleshooting	◆						2b		b			
27.3.2.4.5. Repairs	◆						2b		b			
27.3.2.5. Field deployable latrine TR: 35E35-5-1; AFPAM 10-219, Vol 2 & 5												
27.3.2.5.1. Set up	◆						2b		b			
27.3.2.5.2. Disassemble	◆						2b		b			
27.3.2.5.3. Maintain	◆						2b		b			
27.3.2.6. Bare base water distribution TR: T.O.s 00-105-12, 00-105-12-1; AFPAM 10-219, Vol 2												
27.3.2.6.1. Operational principles							A		A			
27.3.2.6.2. Set up							a		b			
27.3.2.6.3. Troubleshooting							a		b			
27.3.2.6.4. Repairs							a		b			
27.3.2.7. Water purification equipment/ reverse osmosis water purification unit (ROWPU) TR: 40W4-13-41; AFPAM 10-219, Vol 2 & 5												
27.3.2.7.1. Set up	◆						2b		b			
27.3.2.7.2. Operate	◆						2b		b			
27.3.2.7.3. Maintain	◆						2b		b			
27.3.3. Medical facilities erection utility support TR: T.O.s -5-1 & 35E3 Series; AFPAM 10-219, Vol 3							A		A			

1. Task Knowledge and Technical References	2. Core Tasks	3. Certification for OJT					4. Proficiency Codes Used To Indicate Training / Information Provided					
		A	B	C	D	E	A 3 Skill Level		B 5 Skill Level		C 7 Skill Level	
		Tng Start	Tng Complete	Trainee Initials	Trainer Initials	Certifier Initials	(1) Course	(2)	(1) CDC	(2) QTP	(1) RAM	(2) Course
27.4. Survivability support												
27.4.1. Water supply												
27.4.1.1. Determining alternate water												
27.4.1.1.1. Expansion of water facilities						A		B				
27.4.1.1.2. Surface water locations						A		B				
27.4.1.2. Shallow well development (maximum						A		B				
27.4.2. Use M272 Water Test Kit	◆								B			
27.5. Principles of pest management								B				
27.6. Sewer cleaning trailer (SST)												
27.6.1. Operate						a		b				
27.6.2. Maintain						a		b				

28.2.1. Individual's responsibilities for administering first aid														
28.2.2. Self aid and buddy care concept														
28.2.3. Basic lifesaving steps														
28.2.4. Move and transport injured personnel														
28.3. Field Sanitation & Hygiene Measures TR: AFIs 48-110, 10-210; AFDD 35; ARMY FM 21-10														
28.3.1. Personal hygiene measures														
28.3.2. Countermeasures														
28.3.2.1. Disease and pestilence														
28.3.2.2. Communicable diseases														
28.3.3. Sanitation requirements														
28.3.3.1. Field														
28.3.3.2. Kitchen & Mess														
28.4. Self Protection from Extreme Weather TR: A77 AFPAM 10-228, Vol 5; Army FM 21-76														
28.4.1. Hot weather survival techniques														
28.4.2. Cold weather survival methods														
28.5. Force Protection TR: Joint Pub 1-02; AFH 32-4014, Vol 4; AFH 10-222, Vol 3; AFPAM 10-228 Vol 2; DoD 0-2000.12-H; Joint Services Guide 5260														
28.5.1. Personal / Work Party Security TR: AFIs 36-2226, 36-2209, 31-301, 10-403, 10-404, 31-207, 10-215; AFPAM 10-228, Vol 3 ; Army FMs 21-75; 7-8; A88														
28.5.1.1. Combat skills														
28.5.1.2. Defensive tactics														
28.5.1.2.1. Cover and concealment														
28.5.1.2.2. Individual movement														
28.5.1.2.3. Weapons fire control														
28.5.1.2.4. Communications														
28.5.1.2.5. Field fortifications														
28.5.1.2.6. Guard placement/perimeter defense														
28.5.1.2.7. Recognition code system														

For Reference Only

Document General
Contingency Training
IAW AFI 10-210

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Document General
Contingency Training
IAW AFI 10-210

28.5.2. Air Base Defense (ABD) Interface TR: AFIs 31-301, 31-702																			
28.5.2.1. Ground threats																			
28.5.2.2. ABD concept																			
28.5.2.3. Defensive tactics																			
28.5.2.4. Force movement																			
28.5.2.5. Weapons and fire control																			
28.5.2.6. Tactical barriers																			
28.5.2.7. Fighting/Protective Positions																			
28.5.3. Convoy Techniques TR: AFIs 36-2209, 31-301, 10-211, 36-2225, 31-101; AFPAM 10-228, Vol 3; Army FMs 7-8, 7-10, 55-30																			
28.5.3.1. Convoy principles																			
28.5.3.1.1. Organization																			
28.5.3.1.2. Command and control																			
28.5.3.1.3. Vehicle preparation																			
28.5.3.1.4. Security Forces interface																			
28.5.3.1.5. Counter ambush techniques																			
28.5.3.1.6. Defensive ambush measures																			
28.5.4. Passive Defense Techniques TR: AFPAM 10-228, Vol 2 & 5; AFIs 10-210, 10-11, 10-212, 32-4001, 31-101, 31-210, 10-401Vol 1 & 2, 31-301; TM 5-1080-200-13/P; AFH 31-302; AFMAN 32-4005; AFPDs 31-1, 71-1; AFMD 39; AFDD 2-4-2																			
28.5.4.1. Hardening/splinter protection																			
28.5.4.2. Aircraft revetment TR: AFPAM 10-228, Vol 2; AFMAN 10-401 Vol 1 & 2, 32-1071, Vols 1-3; AFDD 2-4.2; AFM 32-4005; AFIs 31-101, 31-210, 31-301																			
28.5.4.2.1. Assemble kit-type revetments																			
28.5.4.2.2. Improvised revetments																			
28.5.4.3. Resource dispersal																			
28.5.4.4. Camouflage, Concealment, and Deception (CCD) Techniques TR: AFPAM 10-228, Vol 2 & 3																			
28.5.4.5. Terrorism TR: AFI 31-210, AFPAM 10-228, Vol 2; Joint Pub 1-02																			
28.5.4.5.1. Awareness																			
28.5.4.5.2. Countermeasures																			

For Reference Only

Document General Contingency Training

IAW AFI 10-210

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Document General Contingency Training

IAW AFI 10-210

AFQTP Documentation Record For AFSC 3E4X1

- Download applicable AFQTPs at <http://www.afcesa.af.mil/Directorate/CEO/Training/Enlisted/QTPs/3E4X1.htm>
- Trainers/Certifiers enter their name and initials in the identification block at beginning of the STS
- Upon administering AFQTPs, enter start date in column 4 of this record
- Upon completion of each unit, document columns 5, 6, and 7
- Upon completion of applicable CerTests, trainer will place the completion date in column 8
- Transcribe by entering current date in columns 5 and 8, Trainees & Trainers Initials in columns 6 & 7

1	2	3	4	5	6	7
TASK NUMBER	TASKS, KNOWLEDGE, AND TECHNICAL REFERENCES	◆ SEE NOTE 1 * 5 LEVEL * 7 LEVEL	START DATE	COMPLETE DATE	TRAINEE'S INITIALS	TRAINER'S INITIALS
14.	Utilities Fundamentals Ref: AFQTP Module 14 – Utilities Fundamentals					
14.6.1.	Measure (Piping)	*				
14.6.2.	Cut (Piping)	*				
14.6.3.	Ream (Piping)	*				
14.6.4.	Thread (Piping)	*				
14.6.5.	Sweat (Piping)	*				
17.	Wastewater Systems Ref: AFQTP Module 17 – Wastewater Systems					
17.4.	Establish trench grade	*				
17.5.	Establish pipeline slope	*				
17.9.1.1.3	Power augers (Open clogged or restricted drainage systems using)	*				
23.	Fixtures and Related Components Ref: AFQTP Module 23 – Fixtures and Related Components					
23.2.1.	Lavatories (Replace)	*				
23.2.2.	Water closets (Replace)	*				
23.3.1.	Water closet components (Repair)	*				
23.3.2.	Traps (Repair)	*				
23.3.3.	Faucets (Repair)	*				
23.3.4.	Mixing valves (Repair)	*				

1	2	3	4	5	6	7
TASK NUMBER	TASKS, KNOWLEDGE, AND TECHNICAL REFERENCES	◆ SEE NOTE 1 * 5 LEVEL * 7 LEVEL	START DATE	COMPLETE DATE	TRAINEE'S INITIALS	TRAINER'S INITIALS
23.3.5.	Flushometers (Repair)	*				
24.	Valves Ref: AFQTP Module 24 – Valves					
24.6.3.	Check (Replace valves)	*				
24.6.5.	Gate (Replace valves)	*				
24.7.3.	Check (Repair valves)	*				
24.7.5.	Gate (Repair valves)	*				
26.	Water Testing Ref: AFQTP Module 26 – Water Testing					
26.1	Collect samples	*				
26.2.1.	PH (Perform water test)	*				
26.2.2	Chlorine residual (Perform water test)	*				

NOTE 1: ◆ 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 certification of these tasks. In instances where required equipment is not available for instruction, completion of the task's AFQTP and passing the corresponding CerTest is all that is required for upgrade and qualification training. Hands-on certification should be accomplished at the first opportunity when equipment is available. In locations where the equipment is available for hands-on certification, CerTest completion is still a mandatory requirement.

1	2	3	4	5	6	7	8
TASK NUMBER	TASKS, KNOWLEDGE, AND TECHNICAL REFERENCES	◆ SEE NOTE 1 * 5 LEVEL * 7 LEVEL	START DATE	COMPLETE DATE	TRAINEE'S INITIALS	TRAINER'S INITIALS	CerTest COMP DATE
27.	AFSC Specific Contingency Responsibilities Ref: AFQTP Module – AFSC Specific Contingency Responsibilities; AFQTP CD-ROM M272 Water Testing Kit Version 1						
27.3.1.1.2	Set up (HE water distribution system) CerTest # 8079	◆					
27.3.1.1.3.	Troubleshooting (HE water distribution system) CerTest # 8079	◆					

27.3.1.1.4.	Repairs HE water distribution system) CerTest # 8079	◆				
27.3.2.4.1	Set up (Shave stand & Shower facility) CerTest # 8168	◆				
27.3.2.4.2.	Perform operational tests (Portable shower unit & shave stand) CerTest # 8169	◆				
27.3.2.4.3.	Service/Periodic maintenance (Shave stand & Shower facility) CerTest # 8169	◆				
27.3.2.4.4.	Troubleshooting (Shave stand & Shower facility) CerTest # 8169	◆				
27.3.2.4.5.	Repairs (Shave stand & Shower facility) CerTest # 8169	◆				
27.3.2.5.1	Set up (Field deployable latrine) CerTest # 8135	◆				
27.3.2.5.2.	Disassemble (Field deployable latrine) CerTest # 8135	◆				
27.3.2.5.3.	Maintain (Field deployable latrine) CerTest # 8135	◆				
27.3.2.7.1.	Set up (ROWPU) CerTest # 8037 & 8038	◆				
27.3.2.7.2.	Operate (ROWPU) CerTest # 8039	◆				
27.3.2.7.3.	Maintain (ROWPU) CerTest # 8040, 8041 & 8042	◆				
27.4.2.	Conducting water testing using a M272 Water Test Kit, Chemical Agents CerTest # 8214 - 8220	◆				

SECTION B - COURSE OBJECTIVE LIST (COL)
(This section used when developing lesson plans)

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

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

4.2. 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.

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

5. 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.

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

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

7.1. Initial Skills Course. A detailed listing of the initial skills course objectives may be obtained by written request to 366 TRS/DO, 727 Missile Road, Sheppard AFB TX 76311-2254.

7.2. 7-Skill Level Course. A detailed listing of the CE Craftsman Management course objectives may be obtained by written request to 366 TRS/DO, 727 Missile Road, Sheppard AFB TX 76311-2254.

SECTION C - SUPPORT MATERIALS

8. CerTest.

8.1. CerTest is a program that uses computer-based evaluation to ensure skilled craftsmen are available to meet the Air Force's changing needs. It enhances upgrade and qualification training by testing and evaluating an individual's knowledge of the principles and procedures in each specialty.

8.1.1. The program contains tests used evaluate task knowledge received through different media such as paper products (text), videotapes, and computer-based programs.

8.1.2. The CerTest program contains **mandatory** tests, required for upgrade. All **diamond** (◆) coded tasks on the STS have a corresponding **mandatory** test.

8.1.3. CerTest is also a powerful training management tool. It can be used to find the strengths and weaknesses in an individual's training and experience. CerTest automatically records and updates all test results. The training manager can copy records to a disk so that an individual can bring current, accurate training information to a new unit; thereby helping the gaining supervisor evaluate the trainee's knowledge and experience.

8.2. CerTest also enable unit personnel to develop site-specific tests. These custom-made tests standardize testing on tasks unique to a specific duty station and/or assignment. The program contains a graphics library that may be used along with a menu-driven test editor to develop these site-specific tests.

8.3. CerTest also contains **optional** CDC pre-evaluation tools. Volume review exercises are available for progress checks after each volume is completed. After all volumes are completed in a set, the trainee may take the course review exercise before taking the final End of Course exam at the base training office. Commanders are encouraged to integrate these tools in their unit's OJT program.

8.4. CerTest has been adopted as the Air Force platform for future electronic CDC testing. The Air Force Institute for Distributive Learning (AFIADL) began using CerTest on 1 June 2000. Currently, all CE AFSCs are allowed to use AFIADL's CerTest on installations where Base Test Control Facilities (TCFs) are equipped. See your UETM for further information.

8.5. The **mandatory** CerTests for each AFSC are identified, by number, with it's corresponding AFQTP on the 3E4X3 AFQTP Documentation Record.

8.6. Air Force Qualification Training Packages. (See AFCESA web page for up-to-date AFQTP status)

<http://www.afcesa.af.mil/Directorate/CEO/Training/Enlisted/QTPs/3E4X1.htm>

SECTION D - TRAINING COURSE INDEX

9. 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 resident courses.

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

Course Number	Title	Developer
J3ABR3E431-003	Utilities Systems Apprentice (AFSC 3E431)	366 TRS
J3AZR3E451-004	Fire Suppression Systems Maintenance (AFSC 3E451)	366 TRS
J3AZR3E471-101	Bare Base Water Purification and Distribution Sys (AFSC 3E471)	366 TRS
J4AZT3E451-002	Backflow Prevention Devices Testing (AFSC 3E451)	366 TRS
J3ACR3E070-000	Civil Engineer Management Craftsman	366 TRS

11. Air Force Institute for Advanced Distributive Learning (AFIADL) Courses.

Course Number	Title	Date
CDC 3E451, A&B	Utilities Systems Journeyman	A = Jan 97 B = Jul 97

12. Exportable Courses/Information.

Course Number	Title	Date
	Civil Engineer Management Craftsman Read-Ahead Material (RAM) version 2.1	Jul 01

13. Courses Under Development/Revision.

Course Number	Title	Date Due
J3ABR3E431-008	Utilities Systems Apprentice	05-Aug-02
CDC 3E451 A&B	Utilities Systems Journeyman	15-Oct-02

SECTION E – MAJCOM-UNIQUE REQUIREMENTS

14. No current MAJCOM-unique requirements. This area is reserved.

SECTION F - HOME STATION TRAINING

15. Purpose. The purpose of this section is to identify the tasks, training references, and training sources available in support of contingency/wartime training. 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 10-210, Prime Base Emergency Engineer Force (BEEF) Program.

15.1. Home Station Training (HST). HST is training that is conducted at the individual's home station for contingency operations.

15.1.1. Category I (CAT-I) training consists of knowledge-level training such as Prime BEEF orientation, field sanitation, and expedient methods. CAT-I training is normally accomplished through briefings and the use of videos and other training aids. These various training aids are listed in AFI 10-210, Attachment 2 under the "Optional Source for Training Material" column.

15.1.1.1. . The "General Contingency Responsibilities" (GCR), CD-ROM Training Package may be used for Category I contingency training. Successful completion of the lessons in the GCR CD-ROM will satisfy those SORTS requirements indicated in AFI 10-210, Chapter 4 and Attachment 2. It can be used for training and evaluation and is based on successful completion of one or more lessons completed in any order. One, some or all lessons may be completed at a given time. At the end of each lesson, the trainee will successfully complete the Lesson Review Exercise (LRE) and receive a certificate of training generated by the CD-ROM. The trainee must present the certificate or certificates to the Readiness Training Monitor to receive credit for the training.

15.1.1.2. Also available are various volumes of Home Station Training CD-ROM packages. These disks contain up to five presentations covering various CAT I topics. These are an additional method of providing required recurring training and topics covered are indicated in the training material column of Attachment 2 by the letters "PBCD".

15.1.1.3. For personnel assigned to a unit with a Prime BEEF mission for the first time, the 3-Level General Contingency Responsibilities CD-ROM is to be completed within the first 90 days of assignment. This product contains 17 lessons covering CAT I training topics. CAT I credit can be given for completion of these lessons for the same areas as the previously mentioned General Contingency Responsibilities product as indicated in AFI 10-210. Completion certificates should be presented to the Readiness Training Monitor for documentation of training.

15.1.1.4. The Unit should develop procedures to use these products to suit their needs. Remember these are tools to assist you in fulfilling CAT I training requirements. Document this training as outlined in AFI 10-210.

15.1.2. Category II (CAT-II) training is primarily task-oriented training such as weapons training, hard-back tent construction, and convoy security and the hands-on portion of various CAT I topics. This training is listed in AFI 10-210, Attachment 3 can be conducted during regularly required field training exercises.

15.2. Training References.

15.2.1. AFI 10-210, Prime Base Engineer Emergency Force (BEEF) Program.

Chapter four of AFI 10-210 identifies the Prime BEEF recurring training requirements. You can review this document by going to the Air Force publications web site. Attachment 2 is a list of HST CAT-I training requirements and Attachment 3 lists CAT-II training requirements.

15.2.2. Prime BEEF Contingency and Wartime Tasks - AFPAM 10-219, Vol 10.

The Contingency Training Guide and Task Standards (AFPAM 10-219, Vol 10) lists basic wartime skills, knowledge, and the major common contingency/wartime tasks that Prime BEEF teams will be required to perform. The Contingency Training Guide and Task Standards identify the AFSs associated with each task, required resources to accomplish the task, and the maximum time (under optimum conditions) expected to complete the task. The document also identifies the lead AFS on each task. This document is located on the Air Force Publications Web site.

15.2.3. AFPAM 10-219 Series. These documents assist in home station training and contingency responses. They replaced the AFP 93-12 series of planning documents and are available on the Air Force Electronic Publications Library (AFEPL).

15.2.4. Air Force Education and Training Course Announcements (ETCA).

Superseded AFCAT 36-2223. It is located at the following URL:

<https://etca.randolph.af.mil> lists additional training/educational opportunities available for civil engineer personnel. This catalog contains information on formal education and training courses. The catalog is updated quarterly.

15.2.5. Readiness Training Package (RTP). RTPs are lesson plans for HST lessons. The RTPs are intended for those personnel who teach any area of HST. The index and RTPs are located on the Air Force Civil Engineer Support Agency (AFCESA) home page. The internet address for this information is <https://wwwmil.afcesa.af.mil>.

15.2.6. Other Documents. AFH 10-222, Bare Base Development, Bare Base Facility Erection, Force Protection, Mechanical Systems, Bare Base Assets, Bare Base Generators and other volumes in the AFH 10-222 series are used for contingency training and operations. The AFH series are pocket guides providing information on bare base systems for all AFSs. AFH 10-222, Vol 4, Air Force Environmental Handbook for Contingency Operations, was developed to assist the environmental career field (3E4X3) on environmental quality issues during contingency and training operations. The hand-book can be used by any AFS that works closely with environmental issues. Visit the Air Force Publications web site to download this information.

15.2.7. AFCESA/CEX. Maintains a comprehensive listing of audiovisual products that support the contingency training program. To view this listing as well as gain information on how to order specific audiovisual products, please consult the AFCESA Contingency Support page.

15.3. Ancillary Training.

15.3.1. Team Exercise Sites (CAT III). All CE personnel who fill critical Unit Type Code (UTC) positions will receive team training at Silver Flag Exercise Sites (SFES)

with the exception of members on headquarters staff augmentation UTCs, pavement evaluation UTCs, and generator repair and maintenance UTCs. There are currently three active SFES in the world today. They are located at Tyndall AFB, FL; Ramstein AB, Germany; and Kadena AB, Japan. Active duty personnel in critical UTC positions will be qualified at least every 30 months on the elements listed in table 4.3 of AFI 10-210. The Air Reserve Components (ARC) will be qualified at least every 45 months.

15.3.2. AEF/Spin-up Training. The AFCESA home page has the worldwide locator for the different types of training, locations, and Points Of Contact (POC) for equipment items that may be encountered during contingency operations.