



ANNEX 3-34 ENGINEER OPERATIONS

APPENDIX A: PRIME BEEF/RED HORSE CAPABILITY DESCRIPTIONS

Last Updated: 30 December 2014

This Appendix describes capabilities the Prime BEEF and RED HORSE teams are organized trained, and equipped to provide in support of military operations. The capabilities are laid out in corresponding “tiered” levels with the [Joint Capabilities Areas \(JCAs\)](#), a standardized set of definitions that cover the full range of military operations. Tier 1 (**black**), Tier 2 (**dark blue**), etc., further refine each area and provide additional description. The terminology not color coded in this document are Air Force Engineer tasks used to describe our capabilities to the COMAFFOR and his Staff for planning purposes. This document also provides reference for Air Force Civil Engineer Squadron Commanders to facilitate communication among other Services. These definitions were pulled from multiple sources. A full list of references can be found at the end of this Appendix.

Force Support - The ability to establish, develop, maintain and manage a mission ready total force.

Force Management - The ability to integrate new and existing human and technical assets from across the Joint Force and its mission partners to make the right capabilities available at the right time and place to support National security.

Global Force Management - The ability to align force apportionment, assignment, and allocation methodologies in support of the National Defense Strategy and joint force availability requirements; present comprehensive insights into the global availability and operational readiness of US military forces; globally source joint force requirements; and provide senior decision makers a vehicle to quickly and accurately assess the impact and risk of proposed allocation, assignment and apportionment changes. (From Annex A [Glossary] "Global Force Management Guidance FY 2005").

Readiness Reporting - The ability to evaluate, appraise, and characterize the status of military forces and the supporting infrastructure to perform assigned missions.

Air and Space Expeditionary Force (AEF) Unit Type Code (UTC) Reporting Tool (ART) – ART collects and collates unit-reported data to answer, in whole or in part, the following questions: Are UTCs able to accomplish their Mission Capability (MISCAP) statement? Are UTCs able to accomplish their deployment tasking? Are adequate resources and training available in order to accomplish and sustain the AEF mission(s)? ART complements readiness data reported in Status of Resources and Training System

(SORTS) by focusing on the modular, scalable capability-based UTCs designed to meet the needs of the AEF while SORTS is unit-centric.

Defense Readiness Reporting System (DRRS) – DRRS is the sole readiness reporting system for the Department of Defense (DOD), which establishes a capabilities-based, adaptive, near real-time readiness reporting system for the DOD to measure the readiness of military units to meet missions and goals assigned by the Secretary of Defense.

Facility Priority Listing – Critical facilities such as those serving aircraft; ammunition; petroleum, oil, and lubricants (POL) trucks and systems; liquid oxygen storage; wing and squadron operations; photo labs; essential utilities; ADR equipment; fire response equipment; and command and control functions should be in hardened or semi-hardened shelters/facilities, bunkers, or revetted areas. A full listing of your installation's priority list can be found in Appendix J of your installation's Contingency Response Plan.

Status of Resources and Training System (SORTS) – SORTS is an internal management tool used to provide data critical to crisis planning, provides for the contingency and peacetime planning processes, and is used by the Chief of Staff United States Air Force (CSAF) and subordinate commanders in assessing their effectiveness in meeting Title 10, "United States Code," responsibilities to organize, train, and equip forces for combatant commands.

Force Preparation - The ability to develop, enhance, adapt and sustain the total force to effectively support National security.

Training - The ability to enhance the capacity to perform specific functions and tasks using institutional, operational, or self-development (to include distance learning) domains in order to improve the individual or collective performance of personnel, units, forces, and staffs. (Derived from CJCSM 3500.03B).

Contingency Skills Training (CST) – As defined in Attachment 2, AFI 10-209, *RED HORSE Program*.

Field Training – As defined in Attachment 3, AFI 10-209.

Home Station Training (HST) – As defined in Attachment 2, AFI 10-210, *Prime Base Engineer Emergency Force (BEEF) Program*.

Mission Essential Equipment Training (MEET) – As defined in Attachment 4, AFI 10-210.

Silver Flag (SF) Exercise Training – As defined in Attachment 5, AFI 10-210.

Special Capabilities Training – As defined in Attachment 4, AFI 10-209.

Staff Augmentation Team (S-Team) Training – As defined in Attachment 6, AFI 10-210.

Vehicle/Equipment Training – As defined in Attachment 3, AFI 10-210 and Attachment 5, AFI 10-209.

Weapons Training – As defined in Attachment 6, AFI 10-209; and Attachment 2, AFI 10-210.

Exercising - The ability to plan, prepare, execute and evaluate maneuvers or simulated operations to validate training or conduct mission rehearsal. (Derived from CJCSM 3500-03A).

Contingency and Wartime Chemical, Biological, Radiological and Nuclear (CBRN) Attack Response – Operations that include chemical, biological, radiological, and nuclear, either individually or in combination. Toxic Industrial Material (EIM) and Hazardous Materials (HAZMAT) are considered part of CBRN.

Major Accident Response including Hazardous Material (HAZMAT) – An accident involving DOD materiel or DOD activities that is serious enough to warrant response by the installation Disaster Response Force. It differs from the minor day-to-day emergencies and incidents that installation agencies typically handle.

Natural Disaster Response – As defined by the Robert T Stafford Disaster Relief and Emergency Assistance Act, any natural catastrophe (including any hurricane, tornado, storm, high water, wind-driven water, tidal wave, tsunami, earthquake, volcanic eruption, landslide, mudslide, snowstorm, or drought) or, regardless of cause, any fire, flood or explosion, in any part of the United States, which in the determination of the President causes damage of sufficient severity and magnitude to warrant major disaster assistance under this act to supplement the efforts and available resources of States, local governments, and disaster relief organizations in alleviating the damage, loss, hardship, or suffering caused thereby.

Response to Terrorist Attack with CBRN Materials, Including Toxic Industrial Chemicals/Toxic Industrial Materials (TICs/TIMs) – A set of procedures established for response forces to deal with the effects of a terrorist incident. It includes DoD preparedness and response for mitigating the consequences of a terrorist incident, including terrorist use of WMD.

Battlespace Awareness - The ability to understand dispositions and intentions as well as the characteristics and conditions of the operational environment that bear on national and military decision-making by leveraging all sources of information to include Intelligence, Surveillance, Reconnaissance, Meteorological, and Oceanographic.

Collection - The ability to gather data and obtain required information to satisfy information needs.

Measurements and Signatures Collection - The ability to collect parameters and distinctive characteristics of natural or man-made phenomena, equipment, or objects.

Chemical/Biological Materials and Nuclear Radiation (CBRN) - The ability to gather information from chemical and biological agents, objects and activities. The ability to obtain information derived from nuclear radiation and other physical phenomena associated with nuclear weapons, reactors, devices, facilities and fissile materials.

Analysis – A continuous and integrated process of compiling and examining information on the protective posture of a unit or activity. The process assesses multiple factors (antiterrorism, force protection, medical surveillance, CBRN defense capabilities [strengths and weaknesses] of a force or activity). The assessment provides the commander with an estimate of the potential severity of a CBRN attack or accidental release.

Modeling – CBRN hazard and prediction modeling is capable of near-real-time Course of Action (COA) analyses and predictive evaluations under CBRN situations and provides CBRN staff planners with the analytical capability to determine and assess the impact of a CBRN incident on military operations.

Prediction – Using advanced CBRN modeling scenarios, in conjunction with Joint Warning and Reporting Network (JWARN), as a CBRN shape tool during execution activities. JWARN provides the ability to compute the transport and dispersion of chemical and biological (CB) agents and simulate hazards in a variety of scenarios.

Logistics - The ability to project and sustain a logistically ready joint force through the deliberate sharing of national and multi-national resources to effectively support operations, extend operational reach and provide the joint force commander the freedom of action necessary to meet mission objectives.

Logistics Services - The ability to provide services and functions essential to the technical management and support of the joint force.

Water and Ice Service - The ability to produce, test, store and distribute bulk, packaged and frozen water in a contingency environment.

Bulk Water (non-potable and potable) - The ability to provide and distribute fresh, brackish, or seawater from storage to point of use that has not been treated or disinfected and has not been approved for human consumption. The ability to produce, inspect, and distribute bulk potable water from storage to point of use.

Expeditionary Drinking Water Systems/Processes – Consult Bioenvironmental Engineering (BE) in design and development of drinking water systems/processes. The BE flight plays an instrumental role in drinking water quality, treatment, and vulnerability.

Expeditionary Ice-Making Capabilities – As part of the follow-on stage of installing Basic Expeditionary Airfield Resources (BEAR) assets (within the first 30-days), survivability enhancements are to be considered. Establishing ice-making capabilities in the water plant is one of these tasks.

Expeditionary Water Distribution and Storage System – Includes storage (elevated tanks, bladders, etc.), pumps, piping (underground, surface laid, etc.), valving, and metering.

Expeditionary Water Treatment – Includes operating existing water treatment plants, establishing expedient water treatment plants, chlorinating, and fluoridating.

Local Municipality Tie-in – Tie into local municipalities where it is economically feasible, and conditions meet health and force protection standards. The installation of a water purification station should be considered during the initial planning for the base camp and be part of the startup costs for the base camp.

Reverse Osmosis Water Purification Unit (ROWPU) – A water purification device that uses a series of membranes to eliminate impurities. It is capable of removing dissolved minerals. Expeditionary requirements may lead to a switch over to ROWPU treated water for consumption when the base population surges beyond the AF's ability to purchase, marshal, and ship enough bottled water to support base populations in remote areas.

Well-Drilling – A minimum of two wells per camp, one primary and one back up, within the boundaries of the base camp are recommended. Planning will include the drilling of all wells at the same time to reduce mobilization costs. If economically feasible, plan and install water storage distribution systems. Additional wells may be drilled within the base camp boundaries, if the situation allows, if additional capacity is required. Well-drilling should be contracted through civilian markets where it is economically feasible and conditions meet force protection requirements. Postured equipment limits drilling to a depth of 1,500 feet.

Contingency Base Services - The ability to provide shelter, billeting, waste management and common user life support management in an a contingency environment.

Shelter - The ability to provide covered areas and other spaces for industrial operations, administration, and personnel.

Expeditionary Construction – A level of construction support that employs no external engineer support, uses unit organic equipment and systems and/or host nation resources, provides for initial force presence and maneuver activities until force flow supports arrival of engineer resources, and has a mission duration typically 1-90 days. Site work is minimal to none with maximized use of existing facilities.

Initial Construction – Relatively austere facilities and utilities that require minimal engineer effort. This construction is intended for use during the first six months of a

contingency. Wood framed tents with flooring, latrines with sewage lift stations, tactical generators for electrical distribution and portable refrigeration are examples of this standard. BEAR assets are generally categorized as “initial” construction facilities. It is possible that some of these assets will last several years before needing replacement.

Permanent Construction – A level of construction in which finishes, materials, and systems are selected for high energy efficiency and low maintenance and life-cycle costs. Permanent standard construction has a life expectancy of more than 10 years. Construction standards should consider the final disposition and use of facilities and any long-term goals for these facilities to support HN reconstruction. The JFC must specifically approve permanent construction.

Semi-Permanent Construction – A level of construction in which finishes, materials, and systems are selected for moderate energy efficiency, maintenance, and life-cycle costs. Semi-permanent standard construction has a life expectancy of more than two, but less than 10 years. The types of structures used depend on their duration. Semi-permanent construction may be used initially if directed by the JFC after carefully considering the political situation, cost, quality of life, and other criteria.

Temporary Construction – Facilities and utilities of a more substantial nature. It is used to increase efficiency and sustain operations for at least 24 months and with upgrades for up to five years. Wood frame buildings, bathhouses, commercial electric power and paved roads are examples of the temporary standard.

Utility Operations - The ability to manage and operate power, environmental control, water, and waste systems.

Expeditionary Graywater Disposal – Evaporation beds (aka drying beds) are often used to dispose of graywater from shower and laundry facilities in hot, dry climates and where clay soil prevents the use of standard soakage pits.

Expeditionary Heating, Ventilation, Air Conditioning, Refrigeration (HVAC/R) Systems and Controls – Maintenance and operation support of fixed and mobile heating and air conditioning systems, and HVAC controls.

Expeditionary Power Production and Distribution – During bare base electrical power generation and distribution development, phase one is to provide initial power via mobile electric power (MEP) generators and the second is to establish power plants and install the overall base electrical distribution network. Where economically supportable and practical, connect base camp power grids to commercial power.

Expeditionary Solid Waste Disposal – Disposal of garbage, refuse, sludge, and other discarded materials, including solid, semi-solid, liquid, and contained gaseous materials resulting from industrial and commercial operations and from community activities. Possible disposal options, environment dependent, are to use host-nation contractors to dispose of solid waste, on-site facilities, or a combination of these methods. Other options include recycling, composting, landfills, incinerator facilities, and burn pits. Whatever method is used, minimize the amount of solid waste that must be disposed of

while still satisfying command requirements.

Expeditionary Wastewater Disposal – Proper wastewater disposal is essential to protect the health of the force. Consider connecting to an established installation sanitary sewer system, collecting and retaining wastewater for engineer/contractor removal to a fixed treatment facility, engineering a semi-permanent wastewater collection and disposal system, and using a field expedient wastewater disposal system, if available. Examples of field expedient wastewater disposal systems include evaporation beds, seepage pits, soakage pits and soakage trenches, sewage lagoons and leach fields.

Water Reuse - The ability to collect, process and return grey water from showers and laundries for re-use in showers and laundry.

Bare Base Planning – Plan ahead to take advantage of opportunities to reuse wastewater for other purposes. Activities/facilities that use non-potable water should be sited, when possible, near those that generate wastewater (e.g., wastewater from laundry and shower units could be used for mixing concrete, compacting soil and controlling dust).

ROWPU Operations – A water purification device that uses a series of membranes to eliminate impurities. It is capable of removing dissolved minerals. Expeditionary requirements may lead to a switch over to ROWPU treated water for consumption when the base population surges beyond the AF's ability to purchase, marshal, and ship enough bottled water to support base populations in remote areas.

Hygiene Services - The ability to provide laundry, shower, textile and fabric repair support.

Personal Hygiene Services - The ability to provide personal shower and sink facilities and human waste collection and processing for individuals of both sexes in a field environment.

Expedient Field Facilities – In the early stages of bare base deployments, deployable hygiene and sanitation kits may not be readily available. Expedient facilities could include any of the following: latrines, urinals, hand-washing stations, shower and shaving stations, and water-heating or mess kit cleaning devices. Construct these facilities when no other practical options are available or permitted.

Expedient Latrine Facilities – Basic versions of either pit or above-ground drum type latrines. They are normally collocated with urine tubes and hand-washing stations. Even commercial portable latrines can be considered a drum type latrine because it must be emptied after some period of use—albeit by contractor personnel. In general, expedient latrines are intended for temporary use until suitable facilities are erected or an existing sanitary sewer system is being rehabilitated.

Engineering - The ability to execute and integrate combat, general, and geospatial engineering to meet national and JFC requirements to assure mobility, provide infrastructure to position, project, protect, and sustain the joint force, and enhance visualization of the operational area, across the full spectrum of military operations.

General Engineering - The ability to employ engineering capabilities and activities, other than combat engineering, that modify, maintain, or protect the physical environment. Examples include: the construction, repair, maintenance, and operation of infrastructure, facilities, lines of communication and bases; terrain modification and repair; and selected explosive hazard activities. (JP 3-34)

Base Denial – Removal of resources from a threatened area, rendering resources unusable by fire or explosives, removal of parts, contamination (other than by nuclear, biological, or chemical means), immobilizing, partially or totally destroying military equipment, supplies or infrastructure.

Batch Plant Operations (Asphalt/Concrete) – Performing batch plant operations, training, procuring, and maintaining batch plant, designing and planning asphalt/concrete batch mix and operations.

Contingency Contract Management – Managing and inspecting construction and maintenance contracts. Interpreting plans, specifications, and other contract documents. Coordinating, evaluating, monitoring, and documenting contract activities and progress. Preparing recommendations for contract modifications. Reviewing material submittals for compliance with contract specifications. Conducting pre-final, acceptance, and post-acceptance inspections.

Engineer Reconnaissance/Site Survey – Conducting reconnaissance, site location, construction, and mapping surveys.

Explosive Demolition Operations – Conducting explosive demolition for construction purposes, quarry operations, facility demolition, or base denial.

Provide Technical Engineer Advice – Providing technical advice on all matters pertaining to general engineering and installations support (e.g., force beddown and sustainment, capabilities and limitations, environmental concerns, installation geospatial data).

Quarry Operations – Use of explosives, rock drilling, rock crushing, and conveyor operations to produce aggregate to support asphalt and concrete operations.

Staff Augmentation (Echelon Above Wing) – Providing command force staff augmentation for operational planning, engineer management, technical design, construction management, C2 expeditionary site planning, and reporting in support of wartime or stability operations.

Targeting Assistance – Providing advice on the effects of targeting to avoid unnecessary destruction of infrastructure and estimate repair efforts for friendly forces.

Gap Crossing - The ability to enable joint forces to overcome breaks or openings in terrain (dry or wet, natural or man-made) by providing a system of temporary and permanent crossing techniques and equipment.

Construct and Maintain Combat Roads and Trails – Project combat power across a linear, dry obstacle by delineating routes, conducting reconnaissance, clearing ground cover, performing earthwork, providing drainage, stabilizing soil, and preparing the road surface for transit by combat and tactical vehicles.

Unexploded Explosive Ordnance (UXO)/Explosive Ordnance (EO)/Improvised Explosive Device (IED) Clearance – Performing clearance of UXO, EO, and IEDs needed to assure mobility and maneuver where and when desired, without interruption or delay, to achieve the mission. Direct combat support missions include the destruction of stockpiled and abandoned enemy ordnance, route clearance, post-attack investigation, and Counter (C)-IED operations.

Develop and Maintain Facilities - The ability to develop, rehabilitate, and maintain bases and installations by providing design, real estate, construction and environmental services which extend through final disposition.

Area Lighting – Installing, operating, and maintaining remote area lighting systems.

Asphalt Paving Operations – Designing and constructing asphalt paved surfaces.

Asset Management – Planning, acquiring, managing, and divesting real property to ensure the overall sustainability and support of Air Force missions, as well as the larger defense requirements of the Department of Defense.

Berm and Dike Construction – Constructing and maintaining berms and dikes for force protection and control of other resources.

Concrete Paving Operations – Designing and constructing concrete surfaces required for lines of communications and other purposes.

Construct Temporary Facilities – Erecting temporary facilities/equipment to include wooden structures, storage structures, underground water and power distribution systems.

Construction Materials Testing – Performing soils exploration, classifying soils in field conditions, and determining strength of materials.

Construction Surveying – Determining distances, areas, and angles; establishing reference points for horizontal and vertical control; marking lines, grades, and principal points; preparing maps, layout structures; determining vertical and horizontal placement of utilities, etc.

Disease Vector Surveillance/Control – Performing integrated pest management functions. Conducting pest management surveys. Determining pest management actions needed to control and prevent infestations by plant and animal pests. Interacting and coordinating with medical personnel to control health hazards.

Erect Expeditionary Facilities – Erecting expeditionary facilities and equipment to include deployable shelter systems, latrines, shower and shave units, environmental control units, generators, boilers, water production equipment, etc.

Expedient Locksmith – Troubleshooting, repairing, and installing commercially manufactured locking devices such as keyed, combination, cipher, panic hardware/exit devices, and padlocks. This does not include General Services Administration certification unless line items require it.

Fire Protection Systems - Inspecting, testing, repairing, and maintaining wet pipe, dry pipe, deluge, foam, and specialized fire protection systems.

Horizontal Construction – Managing, constructing, repairing, and modifying temporary or permanent structural systems and wooden, masonry, metal, and concrete buildings. Managing, constructing and repairing horizontal pavement structure to include asphalt, concrete and unimproved surfaces. Fabricating and repairing components of buildings, utility systems, and real property.

HVAC/R Systems – Installing, operating, and maintaining HVAC/R systems, combustion equipment, and industrial air compressors.

Lightning Arresting Protection – Installing, maintaining, testing, and troubleshooting lightning protection systems.

Master/Comprehensive Planning and Programming – Performing comprehensive planning to address the full range of issues affecting or affected by the installation's development. Through this process, goals and objectives are defined, issues are identified, information is gathered, alternative solutions are developed, and a sound decision-making process is employed to select a preferred alternative for implementation.

Passive Defense Measures – Ensuring appropriate standoff; designing effective facility and road layout; constructing berms, revetments, ditches and fences; employing barriers; installing lighting; assisting in asset dispersal, facility hardening, etc.

Pest, Animal, and Vegetation Control – Performing integrated pest management functions. Conducting pest management surveys. Determining pest management actions needed to control and prevent infestations by plant and animal pests.

Power Generation/Distribution Systems – Installing and operating electrical power production systems and equipment.

Project Management and Execution – Planning, organizing, and overseeing installation facility and infrastructure projects, ensuring entire scope of work is

accomplished in accordance with performance work statements and other predetermined criteria, on time and within budget.

Project Planning and Programming – Providing quality facilities needed to perform the mission. Ensuring project requests meet validated requirements, are in compliance with all applicable standards, are programmed at the lowest life cycle cost, achieve optimum resource efficiency and minimize damage to the natural and human environments, and are within authorities and available resources.

Service Contract Management – Validating contract requirements, preparing performance work statements, preparing surveillance plans, and conducting quality assurance evaluations for facilities operation and maintenance activities.

Vertical Construction - Constructing small and medium facilities to include pre-engineered buildings and super spans.

Waste Collection/Disposal Systems – Establishing and maintaining field sanitary landfills or other similar systems for disposal of trash and refuse. Providing design and construction services for waste collection disposal.

Waste Water Collection/Disposal Systems – Installing, maintaining, and repairing wastewater collection systems. Does not include support to operate and maintain domestic wastewater treatment plants. Wastewater disposal limited to evaporation and facultative lagoons.

Water Production/Distribution Systems – Operating and maintaining water production in field conditions. Installing, maintaining, and repairing water production system components (i.e., pumps, valves, motors). Does not provide support to operate and maintain domestic water treatment plants. Installing, maintaining, and repairing water distribution piping systems (i.e., valves, fire hydrants, booster stations, well pumps, and chlorination).

Well Drilling – Drilling and piping groundwater sources for the production of potable and non-potable water. Postured equipment capacity is 6-inch diameter wells at a maximum depth of 1,500 feet.

Establish Lines of Communication (Airfields) - The ability to assess, construct, repair, and improve routes, railroads, intermodal facilities, and supporting infrastructure to allow the speedy flow of personnel, supplies, and equipment into theater and forward to tactical units.

Aircraft Arresting System – Installing equipment used to stop aircraft by means of absorbing its momentum via a mechanical/hydraulic/pneumatic breaking system in a routine/emergency landing or an aborted takeoff.

Airfield Assessment Repair, Initial (Air Insert) – Rapidly deploying to establish initial airfield operations with personnel from supporting units. Assessing airfield capabilities, preparing helicopter or aircraft landing areas, clearing obstacles, making expedient

[airfield damage repairs](#), and providing initial assessment of required follow-on forces and material resources to establish airfield operations. Does not include capture of airfields via forcible entry or operating on airfields controlled by other US or coalition forces or opening airfields not held by enemy forces.

Airfield Damage Assessment/Repair (ADR) – All actions including damage assessment, explosive ordnance reconnaissance, minimum airfield operating surface (MAOS) selection, UXO hazard mitigation, pavement repair, airfield marking, airfield lighting, arresting system installation, and utility system repairs required to establish, sustain, or recover flying operations capability at an airfield.

Airfield Lighting and Marking – Installing and maintaining airfield lighting to permit night flying and defining the boundaries on an aircraft landing strip or pad. (Note: Air insert RED HORSE does not maintain this capability.)

Airfield Pavement Evaluation – Performing tests and training personnel in airfield pavement standards, procuring and maintaining equipment, generating reports.

Asphalt/Concrete Milling Operations – Conducting asphalt/concrete milling operations. Heavy transport required for milling equipment.

Asphalt/Concrete Paving Operations – Conducting asphalt/concrete paving operations to include roads, taxiways, runways, ramps, ramp expansions, ADR, and other concrete operations. Heavy transport required for paving equipment.

Asset Management – Planning, acquiring, managing, and divesting real property to ensure the overall sustainability and support of Air Force missions, as well as the larger defense requirements of the Department of Defense.

CBRN Assessment/Support – Conducting limited site assessments to determine presence of toxic industrial materials or CBRN hazards. Includes aircraft CBRN contamination assessments.

Firefighting/Emergency Medical Services (EMS) – Containing or hindering the spread of fires and assisting trained firefighters in protecting resources during the initial stages of opening a base/airfield.

Improve Airfields – Conducting pavement evaluations, expanding width and length of runways, reducing obstacles to air operations, improving runway surfaces, marking, lighting, arresting systems, etc.

Revetments – Assembling/erecting revetments to protect aircraft, critical equipment, and facilities.

Snow/Ice Control – Maintaining continuous mission capability by removing snow and ice from airfields and base pavements.

UXO/EO/IED Clearance – Performing rapid narrow scoped clearance of UXO, EO, and IEDs needed for initial bed-down/site survey operations. During this phase, initial EOD

teams should conduct surveys to determine the need for follow-on forces, with additional resources (people, equipment, and explosives) to conduct large-scale, sustained operations.

Global Access Engineering - The ability to enable theater access by determining and documenting infrastructure capacities, in-situ soils, hydrology, and environmental conditions, and forecast and mitigate limitations to enable deployment and improve throughput capacities.

ADR – All actions including damage assessment, explosive ordnance reconnaissance, MAOS selection, UXO hazard mitigation, pavement repair, airfield marking, airfield lighting, arresting system installation, and utility system repairs required to establish, sustain, or recover flying operations capability at an airfield.

Force Protection (FP) Construction – Serves as the AF subject matter expert on Unified Facilities Criteria (UFC) Anti-Terrorism (AT) standards.

Open the Airbase – Complete site assessments and provide expeditionary site plans and airfield survey information for development of the airfield suitability and restrictions report.

Structural Blast Analysis – Using the Vulnerability Assessment Protection Option Program (VAPO) for all critical, new, and renewed lease facilities.

Vulnerability Assessments – Ensures engineering infrastructure, installation, and/or facility design projects supporting vulnerabilities identified in the Core Vulnerability Assessment Management Program are referenced and prioritized in ACES.

Repair and Restore Infrastructure - The ability to rehabilitate critical infrastructure. This capability includes repairing or demolishing damaged buildings, restoring utilities such as electrical power, and bringing critical facilities such as hospitals, water treatment plants and waste management facilities online.

ADR – All actions including damage assessment, explosive ordnance reconnaissance, MAOS selection, UXO hazard mitigation, pavement repair, airfield marking, airfield lighting, arresting system installation, and utility system repairs required to establish, sustain, or recover flying operations capability at an airfield.

Area Lighting – Installing, operating, and maintaining remote area lighting systems.

Asset Management – Planning, acquiring, managing, and divesting real property to ensure the overall sustainability and support of Air Force missions, as well as the larger defense requirements of the Department of Defense.

Facilities/Infrastructure Damage Assessment/Repair – Inspecting damaged facilities, determining priority of repairs based on information provided from the emergency response plan and performing expedient repairs and permanent repairs at a later time.

HVAC/R Systems – Repairing, HVAC/R systems, combustion equipment, and industrial air compressors.

Power Generation/Distribution Systems – Maintaining, modifying, and repairing electric power generating and control systems.

Waste Collection/Disposal Systems – Providing design and construction services for waste collection disposal.

Waste Water Collection/Disposal Systems – Providing design and construction services for waste water collection disposal.

Water Production/Distribution Systems – Repairing water production system components and water distribution piping systems. Providing design and construction support for water distribution.

Well Drilling – Drilling and piping groundwater sources for the production of potable and non-potable water. Postured equipment capability is 6-inch diameter wells at a maximum depth of 1,500 feet.

Harden Key Infrastructure and Facilities - The ability to apply site- and threat-adaptable plans and designs, advanced construction techniques and materials in order to enhance the prevention or mitigation of hostile actions against materiel resources, facilities and infrastructure.

Collective Protection – Assembling systems to protect personnel inside a building, room, shelter, or tent against contamination through the combination of impermeable structural materials, air filtration equipment, air locks, and over-pressurization.

Develop FP Plan – Assisting in developing FP plan consisting of specific measures to protect facilities and critical assets. Engineer aspects of the FP plan should include elements that contribute to protection of personnel and key aspects of FP such as site layout, barrier placement, berm construction, security lighting, backup power, water source protection, expedient hardening, terrain modification, etc.

Provide Installation FP Measures – Providing protection for personnel using site layout methods, barrier placement, berm construction, security lighting, backup power, water source protection, expedient hardening, terrain modification, etc.

Master Facility Design - The ability to integrate land use, bills of material and forecasts, and construction requirements that facilitate project execution and developing infrastructure and facilities.

Asset Management – Planning, acquiring, managing, and divesting real property to ensure the overall sustainability and support of Air Force missions, as well as the larger defense requirements of the Department of Defense.

Installation Master Planning – Identifying, planning, and programming facilities to support assigned missions. Installation master planning is focused on the base layout, taking into account the environment, base infrastructure, and necessary subsystems, ensuring all requirements meet theater construction standards and comply with unified facilities criteria.

Project Design – Designing facilities and utilities necessary to support the estimated population, mission, and anticipated life span.

Project Planning and Programming – Identifying facilities needed to satisfy current and future requirements, determining most economical methods based on construction standards, developing estimates, obtaining funding, developing project timeline and schedule.

Combat Engineering - The ability to employ engineering capabilities and activities that support the maneuver of land combat forces and that require close support to those forces. Combat engineering consists of three types of capabilities and activities: mobility, countermobility, and survivability. (JP 3-34)

Defeat Explosive Hazards - The ability to locate and neutralize the full range of enemy and friendly explosive hazards that may impede routine operations, decrease mobility or present a threat to force protection. It includes the capability to locate, avoid, and neutralize hazards in concert with mounted or dismounted maneuver (breach) or as part of tactical/operational movement (route clearance).

Base Denial – Includes systems to rapidly clear heavy concentrations of area denial or UXO submunitions from aircraft operating surfaces; Standoff Munitions Disruption (SMUD), using projectile attack as an expedient means of rapidly disrupting large numbers of UXO; specialized vehicle-borne IED and CBRN defeat capabilities; and explosive demolition.

Base Opening Procedures – Explosive Ordnance Disposal teams may augment other airbase opening forces such as special tactics teams, crisis response force (CRF), and airfield assessment teams when intelligence or threat analysis expects unexploded explosive ordnance contamination or if improvised explosive devices are suspected.

Combat Support Missions – Destruction of stockpiled and abandoned enemy ordnance, route clearance, conduct post-attack investigation, conduct C-IED operations, render safe and removal of unexploded ordnance, and defeat improvised explosive devices.

Explosive Ordnance Disposal (EOD) – Identify, evaluate, safe, recover, and dispose of any explosive threat to include abandoned munitions; UXOs; IEDs; weapons of mass destruction (WMD); and chemical, biological, radiological, and nuclear (CBRN).

Small Unit Tactics – Operate, maintain, and employ weapons, including but not limited to, individually assigned small arms, crew served weapons and remote weapon systems.

Wartime Range Clearance – Sub-surface recovery of (sometimes deeply buried) ordnance.

Geospatial Engineering - The ability to portray and refine data pertaining to the geographic location and characteristics of natural or constructed features and boundaries in order to provide engineer services. Examples include: terrain analyses, terrain visualization, digitized terrain products, nonstandard tailored map products, facility support, and force beddown analysis. (JP 3-34)

Utilize Geospatial Data - The ability to provide the Joint Force Commander with the foundation layer of the operational environment for use with collaborative decision-support, and terrain analysis tools.

Geospatial Information Systems (GIS) – Collecting and using GIS data for installation planning.

Base and Installations Support - The ability to provide enduring bases and installations with the assets, programs, and services necessary to support US military forces.

Real Property Life Cycle Management - The ability to acquire, operate, sustain, recapitalize, realign, and dispose of real property assets to meet the requirements of the force.

Asset Management – Planning, acquiring, managing, and divesting real property to ensure the overall sustainability and support of Air Force missions, as well as the larger defense requirements of the Department of Defense.

Installation Master Planning – Identifying, planning, and programming facilities to support assigned missions. Installation master planning is focused on the base layout, taking into account the environment, base infrastructure, and necessary subsystems, ensuring requirements meet theater construction standards and comply with unified facilities criteria.

Provide Installation Assets - The ability to purchase, lease, program for construction, or gain real property installation assets by any other means, including all land, natural resources, anything growing on the land, buildings, structures, housing, stationary mobile facilities, linear structures, firmly attached and integrated equipment (such as light fixtures), plus all "interests" in the property such as easements, oil and mineral rights, or use water and airspace.

Asset Management – Planning, acquiring, managing, and divesting real property to ensure the overall sustainability and support of Air Force missions, as well as the larger defense requirements of the Department of Defense.

Identify Facility Requirements – Coordinating with contracting and legal functions to purchase, lease, program for construction, or gain installation assets, including all land, natural resources, buildings, structures, portable facilities, airfields and roads, installed equipment, etc.

Facilities Support - The ability to provide functional real property installation assets with utilities - energy, water, and wastewater; contract and real property management; pollution prevention; and essential services throughout natural or man-made disasters.

Asset Management – Planning, acquiring, managing, and divesting real property to ensure the overall sustainability and support of Air Force missions, as well as the larger defense requirements of the Department of Defense.

Base Operating Support (BOS) – Directly assisting, maintaining, supplying, and distributing support of forces at the operating location to achieve the mission and maintain the operation of its infrastructure.

Design Management – Providing technical support and contract management for planning and designing base infrastructure.

Energy Security – Establishing and executing a facility infrastructure energy program.

Installations and Facilities – Providing, operating, maintaining, restoring, and protecting the built and natural infrastructure necessary to support the Air Force mission.

Operational Range Clearance (Testing and Training) Support – Clearing operational ranges and test and evaluation ranges of UXO. While normally a surface clearance, operational test and evaluation ranges sometimes require sub-surface recovery of deeply buried experimental ordnance.

Real Property HVAC/R Systems – Installing, operating, maintaining, and repairing heating, ventilation, air conditioning, and refrigeration systems, combustion equipment, and industrial air compressors.

Real Property Management – Maintaining an accurate inventory of all Air Force-controlled real property and real property installed equipment with descriptions of current physical condition, capacity, sizes, and uses.

Real Property Power Generation/Distribution Systems – Installing, operating, maintaining, and repairing electrical power production systems and associated equipment.

Real Property Waste Collection/Disposal Systems – Developing performance work statements to procure waste collection and disposal equipment and services; developing waste management plans; providing administrative oversight for waste collection and disposal activities.

Real Property Waste Water Collection/Disposal Systems – Installing, inspecting, maintaining, troubleshooting, modifying, and managing waste water treatment systems.

Real Property Water Production/Distribution Systems – Installing, inspecting, maintaining, troubleshooting, modifying, and managing plumbing and water distribution systems.

Sustainment of Installation Assets - The ability to assess, preserve, maintain, and repair any built, natural, and cultural installation assets. Includes regular surveys and inspections, and measures to comply with environmental and conservation requirements.

Asset Management – Planning, acquiring, managing, and divesting real property to ensure the overall sustainability and support of Air Force missions, as well as the larger defense requirements of the Department of Defense.

Environmental Program Management and Compliance – Developing environmental plans to protect the health of the population, preserve the environment, reduce waste, and comply with international treaties, overseas environmental baseline guidance documents, final governing standards, etc.

Preventive Maintenance and Inspection of Installation Facilities, Utilities, and Infrastructure – Providing effective assessment, maintenance, and repair of current assets and planning for future missions. Regularly surveying the installation layout, facilities, and equipment, and performing preventive maintenance as needed.

Recapitalization of Installation Assets - The ability to perform the restoration, modernization, and replacement of installation assets to meet tenant requirements and comply with safety and environmental laws to include cleanup of contamination from hazardous substances, pollutants, and contaminants.

Installation Management – The process of better quantifying, articulating, and managing risk while supporting the mission with assets of the right size, condition, and cost to maximize value and utility of built and natural infrastructure. Installation management applies standard levels of service across the Air Force, and integrates existing processes across all civil engineer divisions/flights. Installation management provides resource visibility, supports advocacy and resource allocation, and enables analysis to balance costs, risks, and benefits.

Installation Master Planning – Installation master planning is focused on the base layout, taking into account the environment, base infrastructure, and necessary subsystems, ensuring all requirements meet theater construction standards and comply with unified facilities criteria.

Project Design – Designing facilities and utilities necessary to support the estimated population, mission, and anticipated life span.

Project Management and Execution – Planning, organizing, and overseeing installation facility and infrastructure projects, ensuring entire scope of work is accomplished in accordance with performance work statements and other predetermined criteria, on time and within budget.

Project Planning and Programming – Identifying facilities needed to satisfy current and future requirements, determining most economical methods based on construction standards, developing estimates, obtaining funding, developing project timeline and schedule.

Remediation/Restoration of Environmental Sites – Conducting cleanup of spills and environmental contamination that poses known imminent and substantial endangerment to the health and safety of US/coalition forces and host nation noncombatants.

Disposal of Installation Assets - The ability to conduct demolition and disposal activities resulting in the removal of installation assets from the asset inventory by any means, with consideration of the impact to local communities.

Asset Management – Planning, acquiring, managing, and divesting real property to ensure the overall sustainability and support of Air Force missions, as well as the larger defense requirements of the Department of Defense.

Redeploy Air Force Expeditionary Facilities, Utilities, Infrastructure, and Vehicles/Equipment – The dismantling, readying, and transporting of expeditionary construction, vehicles, and equipment, as required.

Installation Services - The ability to deliver selected services not related to real property (or personnel services) to meet the requirements of the installation population and mission.

Emergency Services - The ability to protect and rescue people, facilities, aircrews, aircraft and other assets from loss due to accident or disaster.

Aerospace Vehicle Mishap Response/Recovery – Supporting sortie generation and space operations by responding to airfield emergencies to render safe ordnance and aerospace launch platforms during in-flight and ground emergencies. Planning, organizing, directing, and assisting in safing, removing, and disposing of EO, explosive hazards, and classified components on or in operational aerospace platforms during crash situations.

Aircraft Rescue and Firefighting – Firefighting actions taken to rescue persons and to control or extinguish fire involving or adjacent to aircraft on the ground.

Air Force Emergency Management (EM) Program – The single, integrated Air Force program that implements the mission, vision, and strategic goals and objectives as well as the management framework to prepare for, protect against, respond to, recover from,

and mitigate the direct and indirect consequences of an emergency or attack. The Air Force EM program is managed by the Office of The Civil Engineer (AF/A7C).

Air Force Incident Management System (AFIMS) – A methodology designed to incorporate the requirements of Homeland Security Presidential Directive (HSPD)-5, the National Incident Management System (NIMS), the National Response Framework (NRF), and Office of the Secretary of Defense (OSD) guidance while preserving the unique military requirements of the expeditionary Air Force.

All Hazards Response – Describing an incident, natural or man-made, that warrants action to protect life, property, environment, and public health or safety, and to minimize disruptions of government, social, or economic activities.

Antiterrorism (AT) – Locating, identifying, and neutralizing explosive hazards and triggering devices; defeating criminal and terrorist explosive devices. Training others on IED recognition, hazards, and precautions. Providing Terrorist Response and Terrorist Consequence Management planning and operations.

Detect/Sample/Identify CBRN/TIM Hazards – Locating CBRN/TIM hazards by use of CBRN detectors or monitoring or survey teams. Collecting representative amounts of gas, liquid, solid or characteristics of one of these, such as gamma or ph, to analyze. Determining which CBRN/TIM material or pathogen is present.

Emergency Operations Center (EOC) Operations – Providing C2 to direct, monitor, and support the installation's actions before, during, and after an incident. The EOC is the physical location at which the coordination of information and resources to support incident management activities normally takes place.

EMS/Emergency Medical Responder (EMR) – Non-transport services provided to patients facing immediate medical emergencies that occur outside of military treatment facilities.

EOD Initial Threat Assessment, Confirmation, Risk Mitigation, Site Stabilization – Obtaining as much information as possible to develop a plan of attack to include gathering information on perpetrator/target; threat analysis; employing detection assets, providing safe approach, and conducting diagnostics.

Federal Agency and Civil Authority Support – Providing assistance to federal and civil authorities by preparing for, deterring, or responding to terrorist or other criminal acts, accidents, found explosive items, and other requests for support. (Note: Support includes US Secret Service, US State Department, and Joint EOD Very Important Persons Protection Support Activity taskings.)

Fire Prevention – Measures such as training, public education, plans reviews, surveys/inspections, engineering reviews, and life safety code enforcement directed toward avoiding the inception of fire and minimizing consequences if a fire occurs.

Hazardous Material Incident Response – Responding to an incident where a hazardous material is present. Hazardous material is a substance (solid, liquid, or gas)

that, when released, is capable of creating harm to people, the environment, and property.

Incident Command – Providing incident command system organizational element responsible for overall management of the incident and consisting of the incident commander (either single or unified command structure) and any supporting staff.

Integrated Incident Management – Assisting with the broad spectrum of activities and organizations providing effective and efficient operations, coordination, and support applied at all levels of government, using both governmental and nongovernmental resources to plan for, respond to, and recover from an incident.

Mortuary Services - Explosive Hazard Analysis/Removal – Detecting, identifying, and removing explosive hazards left on or embedded in human remains during port mortuary operations, theatre remains processing, prisoner of war (POW)/missing in action (MIA) recoveries, mass fatality support operations, and other operations involving human remains.

Nuclear Weapons/Weapons of Mass Destruction (WMD)/CBRN Accident/Incident Response – Locating CBRN contamination, assessing damage, and aiding in the recovery and cleanup following a WMD attack. For nuclear weapons, efforts may include locating, securing, assessing, and recovering a nuclear weapon involved in an accident, and preparing the recovered weapon for transfer to the Department of Energy.

Operational Range Clearance – Clearing active bombing and gunnery ranges in coordination with range management officials and environmental agencies.

Structural Firefighting – Performing rescue, fire suppression, and property conservation activities in buildings, enclosed structures, aircraft interiors, vehicles, vessels, aircraft, or like properties that are involved in a fire or emergency situation.

Urban Search and Rescue – Locating, rescuing (extricating), and initial medical stabilization of victims trapped in confined spaces.

UXO Recovery Operations – Clearing UXO during runway and airbase recovery operations, and neutralizing hazards from explosive-related incidents, which, because of unusual circumstances, present a threat to operations, installations, personnel, or materiel.

Weapons Technical Intelligence – Conducting post-blast analysis and explosive device exploitation to gather information to build a common picture of enemy capabilities, inform commanders of new enemy tactics, techniques, and procedures, and support material developers in building necessary countermeasures.

Housing Services - The ability to manage housing or billeting assignments, referrals, and physical asset management, and provide necessary furnishings and equipment.

Furnishings Management – Manages the installation furnishings and appliances

Program. Provides furnishings for government owned/controlled family housing, unaccompanied housing, and General Officers including Special Command Positions. In addition to housing, provides furnishings for base lodging facilities, Airmen Leadership School sleeping areas and lounges, alert facilities and fire stations sleeping and entertainment areas. Ensures efficient use and storage, accurately account for, properly dispose of, or adequately safeguard furnishings.

Government Owned/Leased Family Housing – Operates and manages Military Family Housing, General Officer Homes, and Unaccompanied Housing for permanent party members including technical training students. Briefs residents on DOD and AF FH management standards regarding tenant liability, resident responsibilities for cleaning, and for maintenance and repair (M&R) of their unit. Monitors planning and programming and manages programs to replace, improve, operate, maintain, repair and lease required FH and UH quarters. Conducts initial, pre-termination and final management and resident inspections. Budgets, controls and authorizes expenditures for the MFH and O&M programs.

Housing Referral and Relocations (HRR) – Ensures DOD personnel and their families receive equal housing opportunities regardless of race, color, religion, national origin, gender, familial status or handicap. Works with government agencies, public utilities, civic organizations and community leaders to provide adequate community housing assets. Counsels and advises members and their families regarding all of their available housing options. Helps eligible DOD personnel find adequate community housing that meets AF standards. Mediates community housing complaints and inquiries into allegations of housing discrimination against applicants for community housing and recommends action to the Installation Commander.

Privatized Housing (PH) – Provides members information on PH, referral policies and lease requirements and refers interested housing applicants to the Property Management Office (PMO). Assists the Project Owner (PO) in marketing PH to eligible and other eligible tenants to help maximize occupancy. Ensures that appropriate compliance testing has been accomplished, maintains adequate records to demonstrate compliance, and submits quarterly compliance checklists to the AF Portfolio Manager. Reviews and coordinates on the Project Owner's annual budget submission, and other financial statements, in accordance with the transaction documents and provides comments to Portfolio Management. Monitors and analyzes trends, identifies areas of concern and ensures status is provided to installation leadership, MAJCOM and AFCEC. Updates and validates annual Utility Rates. Facilitates, in partnership with PMO, the Management Review Committee meetings.

Range Management - The ability to safely maintain, schedule, control and monitor ranges, and uses associated with airspace/sea space and safety zone environments related to fixed point (non-maneuver) ranges.

Range Clearance – Render safe and dispose of unexploded ordnance; environmental UXO remediation is usually only a surface clearance.

Command and Control - The ability to exercise authority and direction by a properly designated commander or decision maker over assigned and attached forces and resources in the accomplishment of the mission.

Organize - The ability to align or synchronize interdependent and disparate entities, including their associated processes and capabilities to achieve unity of effort.

Establish and Maintain Unity of Effort with Mission Partners, and Foster Organizational Collaboration – The ability to foster, maintain, and establish internal structures and processes with mission partners and partner organizations.

Cultivate Relations with Mission Partners and Partner Organizations – The ability to facilitate professional and personal relationships and sustain synergy with military and civilian counterparts.

Air Advisor Building Partnership (BP) Engagements – This type of engagement is focused on building relationships and rapport with partner nation personnel.

CST – Home Station Training (HST) such as unit leadership and operations in a joint environment. CST is often performed with multiple organizations, which fosters inter-organizational coordination.

Contingency Construction Training – Home Station Training (HST) for civil engineer officer and enlisted personnel which includes construction skills, routine operations, planning and design, horizontal/vertical construction, and construction management. Units perform a minimum of one multi-trade construction project every 12 months for active duty and every 24 months for Air Reserve Component civil engineers. Such projects facilitate professional and personal relationships with military and civilian counterparts.

Defensive Operations Training – Hands on training for personal and work party security, convoy operations, military vehicle operator training, air base defense, defensive fighting positions, revetments and obstacles. This training is often provided by multiple organizations, which fosters inter-organizational coordination.

Field Sanitation and Health Training – Home Station Training (HST) such as personal hygiene, control of communicable diseases, kitchen and mess sanitation, extreme climate problems, field hygiene, water purification and related topics. This training is often performed with multiple organizations, which fosters inter-organizational coordination.

Force Beddown Training – Includes information on BEAR assets, package configuration, and playbook options. Lessons cover items such as base layout, utility systems, facility hardening, and environmental protection. This multi-disciplinary training facilitates professional competence and personal relationships.

Realistic Military Training (RMT) Off Federal Real Property – The use of training

environments off federal property when required once they have been properly coordinated with local (e.g., civil, tribal, and private) authorities and when the requirements in DODI 1322.28 have been met. This training cultivates coordination with local authorities which may be of value during Defense Support of Civil Authorities (DSCA) and Homeland Defense missions.

Silver Flag Exercises – SORTS-reportable exercise training highlighting command and control of civil engineer forces through various exercise scenarios, which enhances organizational coordination.

S-Team Training – Staff training above wing level to include Contingency Wartime Planning Course, Deliberate and Crisis Action Planning and Execution System, and Joint Operation Planning and Execution System to enhance synergy with staff counterparts.

Structure Organization to Mission – The ability to dynamically organize elements, assess and integrate capabilities, and define roles, responsibilities, and authorities.

ART – ART collects and collates unit-reported data to answer, in whole or in part, the following questions: Are UTCs able to accomplish their Mission Capability (MISCAP) statement? Are UTCs able to accomplish their deployment tasking? Are adequate resources and training available in order to accomplish and sustain the AEF mission(s)? ART complements readiness data reported in Status of Resources and Training (SORTS) by focusing on the modular, scalable capability-based UTCs designed to meet the needs of the AEF while SORTS is unit-centric.

CBRN Control Center – Serves as an advisory element to the EOC and the Installation Commander on hazards, countermeasures, and protective actions.

Commander's Expectations for Air Force (AF) Civil Engineers (CE) – See War Mobilization Plan (WMP-1), CE Supplement, Enclosures A-I for information on mission requirements, direction, and guidelines for periods of national emergency or war. They give general guidelines to aid in disaster planning and background information for base level planning.

Crisis Action Team (CAT), EOC, Unit Control Center (UCC) – Command and control nodes activated during a contingency situation. Operations are composed of pre-designated personnel scalable to meet the specific requirements of each situation.

DRRS – Sole readiness reporting system for the Department of Defense (DOD), which establishes a capabilities-based, adaptive, near real-time readiness reporting system for the DOD to measure the readiness of military units to meet missions and goals assigned by the Secretary of Defense.

EOC – Provides an organizational structure with command and control functions necessary to place multiple measured response and recovery plans into action and implement them as needed. The EOC determines mission capability, allocates resources and personnel, and ensures the effective direction of personnel supporting response and recovery operations.

Engineer Operations Management – Manage and control work requirements and logistics support for the CE workforce. Included are CE operations management, planning, vehicle management, and material acquisition. Information management systems used to manage, control, plan, schedule, and program work requirements include the Interim Work Information Management System (IWIMS) and the Automated Civil Engineer System (ACES).

Hub and Spoke Concept – Base master planning, programming, technical design, contract development and oversight, light troop construction, and repair of expeditionary bases, facilities, utilities, and force beddown conducted while strategically located in a hub-and-spoke configuration from different locations. This concept provides unity of command while allowing theater-wide integration of engineer forces and effective use of limited resources.

Review Unit Manpower Documents (UMDs) and Mission Capability Statements (MISCAPs) – Review of the UMD and the MISCAPs of the UTCs reflected on their DOC statement, assists commanders in assigning roles and responsibilities for tasked missions.

SORTS – SORTS is an internal management tool used to provide data critical to crisis planning, provides for the contingency and peacetime planning processes, and is used by the Chief of Staff United States Air Force (CSAF) and subordinate commanders in assessing their effectiveness in meeting Title 10, “United States Code,” responsibilities to organize, train, and equip forces for combatant commands.

Tailor AF CE UTCs – Consists of reviewing, comparing, and adjusting AF CE UTCs with mission requirements.

Work Control – Managing, controlling, planning, scheduling, and programming work requirements. Air Force model automated systems are the Interim Work Information Management System (IWIMS) and the Automated Civil Engineer System (ACES), which can transmit data to higher headquarters.

Establish Collaboration Policies and Procedures – The ability to promulgate authoritative direction that facilitates the exchange of information and ideas.

Checklists – Checklists outline actions to be taken in response to emergencies, abnormal, or recurring circumstances; to implement Alert Condition (LERTCON) actions (e.g., Emergency Action Messages [EAM]); or to implement operational order (OPORD) or operational plan (OPLAN) requirements. They are brief, concise, and lead controllers through an orderly and prioritized sequence from initiation to completion.

Common Operating Procedure (COP) – A single identical display of relevant information shared by more than one command. A COP facilitates collaborative planning and assists all echelons to achieve situational awareness.

Defense Support of Civil Authorities (DSCA)/Mutual Aid Agreements – Activities and

measures taken by DOD Components to foster mutual assistance and support between the DOD and any civil government agency in planning, preparing for, or applying military forces and resources in response to, civil emergencies or attacks, including national security emergencies. They set up arrangements where organizations with like capabilities can support each other when called upon in an emergency. FES, SF, and the medical group often enter into these agreements. A major advantage is the speed in which support is initiated. Usually only a phone call from one organization to the other is needed.

Host Nation Support (HNS) Agreements – Used interchangeably with the term “memorandum of understanding (MOU).” A high level agreement between two countries.

Host-Tenant Support Agreements (HTSA) – These detail the relationship between a host base and tenant units. The agreement specifies what support the host base provides to a tenant organization and the responsibilities of the tenant. HTSAs are typically peacetime agreements including a commitment of resources (i.e., reimbursable utilities), but does not typically apply to emergency situations other than disaster response. Occasionally, however, there are units on base that have special capabilities that can be used in a disaster.

Informal Agreements – These are probably the most useful in obtaining emergency response support and are also the most common. They are quicker to produce, with a handshake enough to seal the agreement. The value of such agreements depends on the personality and integrity of the participants, but in most cases, except possibly with a foreign host, they achieve the same results. Foreign hosts may be willing, but are often limited as to what they can do without getting approval from higher headquarters. Informal agreements with outside DOD agencies must be coordinated with the legal office to ensure they are not in violation of law.

Inter-Service Support (also called Intra-Agency Support) – The support provided by the Air Force to a DOD Component. When ANG is the receiver on an AF Active Duty base, with AF property and AF appropriations, the relationship is also considered an inter-service support agreement. Use AFI 25-201, *IS, IA and IA Support Agreement Procedures*.

Intra-Service Support – The support provided by the Air Force to another Air Force unit to include AFRC. When the ANG is the supplier on AF Active Duty or ANG property, with 100 percent AF appropriations (i.e., funds provided by the AF instead of the States), it will be considered an intra-service relationship. ANG to ANG (between different states) support agreements will also be considered intra-service (within the Air Force). Use AFI 25-201, *IS, IA and IA Support Agreement Procedures*.

Joint Support Plans (JSPs) – A formal agreement between the host nation installation commander, the USAF commander who will use the facilities, and the USAF support base commander. It implements more general country-to-country agreements. Consequently, it will probably not be easy to alter the agreement, nor will it be done quickly. The terms and conditions in Joint Support Plans differ by country and by base. Guidance for this plan is theater specific.

Understand and Plan – The ability to individually and collectively comprehend the implications of the character, nature, or subtleties of information about the environment and situation to aid decision-making, and the ability to establish a framework to employ resources to achieve a desired outcome or effect.

After Action Reports (AAR) – AARs are the means by which the AF records issues, best practices, and lessons learned from major exercises, operations, and experiments. Reviewing AARs from previously deployed units will increase mission awareness and the likelihood of success for follow-on units.

Base Comprehensive Planning Process – Component Plan O (Contingency Plan) contains information on land use, addressing such issues as wartime disposal of toxic wastes, human wastes, and solid refuse.

Concepts of Operation (CONOPS) – CONOPS describe key AF mission areas and/or functional areas for enabling desired joint warfighting effects in accordance with national, joint, and service guidance. AF CONOPS provide the conceptual foundation for the Capabilities Review and Risk Assessment and the AF capabilities-based planning process.

GIS – Provide GIS data for installation planning.

Information Gathering from Off-Base Agencies – Consulting with local Civil Defense, Red Cross (or Red Crescent), host nation civil and military authorities, and other emergency response agencies and officials can help form a clear picture of the kinds of hazardous materials transported near the base and how often they pass. They may be able to provide a local history of the area's natural disasters, major accidents, and intentional acts that caused significant damage (set forest fires, vandalism on facilities, etc.). This can also help clarify what CE can do for them and what they can do for CE. The US Army Corps of Engineers can help determine the probability of the base suffering floods or other kinds of related disasters. USAF units with similar missions, or in similar areas, and the MAJCOM can provide guidance on the historical trends of incidents that happen to bases in similar circumstances or with similar missions. If overseas, units that provide short range and point air defenses and perimeter security will have additional threat information.

Information Gathering from On-Base Agencies – The wing plans office has information about the wing's mission. Group and unit planning offices know their capabilities and weaknesses, which will help determine the adequacy of the current level of protection. Wing intelligence and the Office of Special Investigation can identify enemies. Security Forces, safety office, and FES have records on major accidents or mishaps. The bioenvironmental engineers, FES, and the logistics group's maintenance, supply, and transportation units can provide the location, quantities, common uses, and transportation details of most hazardous materials on base. The supporting weather shop has information on the local natural disaster hazards.

Installation Development Plan (IDP) – A summary of the strategic goals and supporting geospatial and written information to advocate for the health and welfare of natural and built resources through project programming, energy initiatives, and encroachment solutions on and off the installation. The document highlights installation capacity, sustainability, and future development.

Lessons Learned (L2) – An L2 is an observation that, when resolved, results in an improvement in military operations or activities at the strategic, operational, or tactical level and results in long-term, internalized change to an individual or an organization. Reviewing L2s pertinent to an upcoming mission may help avoid similar issues.

Major Command (MAJCOM) Instructions and Planning Guidance – MAJCOM guidance, often provided in OPLANs, that each base in their command is expected to follow. Bases may find additional command guidance at the Wings Plans office, the Logistics Plans office, and the CE Readiness and Emergency Management Flight. Many of the common references are listed at the end of this section.

USAF WMP-1 Volume 1, CE Supplements – The CE Supplements to the WMP-1 provides information on mission requirements, direction, and guidelines for periods of national emergency or war. They give general guidelines to aid in disaster planning and background information for base level planning.

Decide, Direct, and Monitor – The ability to select a course of action informed and influenced by the understanding of the environment or a given situation, employ resources to achieve an objective, and observe and assess events/effects of a decision.

CBRN Control Center – The CBRN Control Center facilitates force survivability and mission continuation for forces on and off the installation. The control center directs CBRN reconnaissance activities to shape the hazards and advises the commander on hazards, countermeasures and protective actions. The CBRN Control Center plots and maintains CBRN hazards status on the airbase, in off-base areas of operational concern, and at potential recovery bases.

Emergency Responders – The response element of a Disaster Response Force that deploys to the accident scene after the First Responders to expand C2 and perform support functions. CE Emergency Responders include follow-on elements such as firefighters, emergency management personnel, and EOD personnel.

EOC – The C2 support elements that directs, monitors, and supports the installation's actions before, during, and after an incident.

Facilities Board (FB) – The FB is the installation's local decision-making body for the acquisition, construction, use, maintenance, modification, consolidation, development, demolition, and disposal of built and natural infrastructure at Air Force managed installations. The FB ensures an installation asset portfolio perspective is applied in all decisions and advisory actions. Additional working groups/sub-working groups may be

directed by the Installation Commander. At overseas locations, coordination with host nation liaison offices and/or host nation Forces/NATO representatives may be required.

First Responders – The Disaster Response Force elements that deploy immediately to the disaster scene to provide initial C2, to save lives, and to suppress and control hazards. Firefighters and Explosive Ordnance Disposal (EOD) personnel during Improvised Explosive Device and nuclear accident response operations provide the initial, immediate CE response to a CBRNE incident.

Protection - The ability to prevent/mitigate adverse effects of attacks on personnel (combatant/non-combatant) and physical assets of the United States, allies and friends.

Mitigate - The ability to minimize the effects and manage the consequence of attacks (and designated emergencies) on personnel and physical assets.

Mitigate Lethal and Non-Lethal Effects - The ability to minimize the effects of attacks or designated emergencies which have/don't have the potential to kill personnel and destroy physical assets.

Chemical, Biological, Radiological, and Nuclear - The ability to minimize the effects of chemical, biological, radiological, and nuclear attacks which have/do not have the potential to kill personnel and destroy physical assets.

Contamination Control Area (CCA) Processing – Perform contamination control measures specific to the incident for both peacetime incidents and wartime operations.

Mass Casualty Management – Treatment for mass casualties is often limited to life- or limb-saving care, and triage must be conducted within strict guidelines. Medical staffs conducting triage should know the differences in triage priorities that occur, depending on which CBRN agent is suspected. For example, while it is important that patients be decontaminated before they are admitted to an uncontaminated area, radiation-contaminated casualties usually pose a low risk to health care workers, so treatment may be started before decontamination.

Mass Fatality Management – Requires contaminated remains be processed through the mortuary affairs decontamination collection point. In general, an appropriate medical authority (the theater mortuary affairs officer, medical examiner), possibly in coordination with the joint security coordinator, will determine the degree of hazard and appropriate disposition of human remains.

Restoration Operations – Provide a critical foundation for post-conflict planning to eliminate adversary capabilities, restore forces and infrastructure to normal capability, and establish effective monitoring and other controls. Restoration operations after a CBRN attack must include actions to reduce MOPP, effectively treat CBRN-affected personnel, decontaminate affected equipment, and conduct CBRN vulnerability and capability assessments.

Explosives and Projectiles - The ability to minimize the effects of explosive and projectile attacks which have/do not have the potential to kill personnel and destroy physical assets.

Counter-Improved Explosive Device (C-IED) Operations – Eliminate or mitigate explosive hazards and terrorist/criminal devices, to include missions outside the base boundary or Base Security Zone to enable greater freedom of maneuver for air or surface operations.

Destruct Stockpiled/Abandoned Ordnance – A direct combat support mission to recover/destroy weapon caches.

Explosive Demolition – A special capability system used for base denial effects.

Reduce Area Denial – A special capability system used to rapidly clear heavy concentrations of area denial or UXO submunitions from aircraft operating surfaces.

Route Clearance – A direct combat support mission that ensures lines of communication are free from explosive threats.

Standoff Munitions Disruption (SMUD) – A special capability system using projectile attack as an expedient means of rapidly disrupting large numbers of UXO.

Natural Hazards - The ability to minimize the effects of attacks or designated emergencies which have/do not have the potential to kill personnel and destroy physical assets.

EMS – Services provided to patients facing immediate medical emergencies that occur outside of military treatment facilities.

EOC Operations – Coordinating information and resources to support incident management (on-scene operations) activities. EOC may be a temporary facility or located in a more central or permanently established facility, perhaps at a higher level of organization within a jurisdiction. EOCs may be organized by major functional disciplines (e.g., fire, law enforcement, medical services), by jurisdiction (e.g., federal, state, regional, tribal, city, county), or by some combination thereof.

Structural Firefighting – Performing rescue, fire suppression, and property conservation activities in buildings, enclosed structures, aircraft interiors, vehicles, vessels, aircraft, or like properties that are involved in a fire or emergency situation.

Building Partnerships - The ability to interact with partner, competitor or adversary leaders, security institutions, or relevant populations by developing and presenting information and conducting activities to affect their perceptions, will, behavior, and capabilities in order to build effective, legitimate, interoperable, and self-sustaining strategic partners.

Shape - The ability to conduct activities with partner leaders, security institutions, and relevant populations to build defense relationships that promote shared global security interests, develop allied and friendly security capabilities for self-defense and multi-national operations, and provide U.S. forces with peacetime and contingency access to a host nation.

Build the Capabilities and Capacities of Partners and Institutions - The ability to assist domestic and foreign partners and institutions with the development of their capabilities and capacities -- for mutual benefit -- to address U.S. national or shared global security interests.

Enhance Partner Capabilities and Capacities - The ability to assess and facilitate the development of partner capabilities and capacities in a manner that takes into account the partner's ability to sustain them and advances partnership goals and mutual interests.

Air Advising – Assess, train, advise, assist, and equip partner nation personnel in development and operation of basic aviation infrastructure. Educate and train on foundational skills for USAF standard and partner nation ground equipment.

Engineer Skills Training for Building Partnerships – Air Force civil engineers are a valuable asset to building partnerships providing skills, knowledge, and experience to assist local governments in recovering from disasters or to become self-sufficient.

Multi-Trade Construction Project – Completing the inherently AF requirement of one multi-trade construction project every twelve months will increase the unit's ability to be efficient at providing aid during a building partnership event or subject matter exchange.

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Civil Engineer working groups

Career field analyst descriptions