

ART 4.5.3 Provide Technical Engineer Support

This ART covers how units provide technical support to engineering services in the area of operations (AO). ART 4.5.3 includes quality assurance and control inspections, materials testing, and geodetic and construction surveying. Technical engineering provides oversight to the regulatory construction, safety, and environmental standards. Quality control for construction projects and facilities upgrades includes planning, designing, and monitoring the construction process to achieve a desired end state. This ART also includes acquiring, maintaining, and disposing of real property. (FM 5-412) (USAES)

NO.	Scale	Measure
01	Yes/No	Engineer construction support provided the supported unit in accomplishing its mission in the AO.
02	Yes/No	Environmental considerations planning and procedures were present and being followed.
03	Time	To refine general engineering service program for AO after receipt of warning order.
04	Time	To prepare engineer construction estimate that determines the effort needed to meet the requirements, assign operational and construction responsibilities, and determine additional personnel and equipment requirements.
05	Time	To establish demobilization camps
06	Time	To recon to evaluate the site for suitability and conditions, identify construction problems and possible courses of action, and update or revise the engineer estimate.
07	Time	To prepare construction directive for the construction or renovation of fixed facilities and issue it to the construction unit. This directive states the exact assignment, project location, and start and completion times; specifies additional personnel, equipment, and materials available; prioritizes the entire project; and specifies type and frequency of construction reports, time needed for special procurement, and coordination instructions with user agency.

08	Time	To coordinate for and receive engineer assets to perform task.
09	Time	To monitor construction and perform quality assurance inspections.
10	Time	To perform location survey to establish permanent benchmarks for vertical control and well-marked points for horizontal control.
11	Time	To perform construction layout survey.
12	Time	To develop concept of engineer construction support after receipt of warning order.
13	Time	Between arrival of building supplies and equipment and construction of sustainment facilities in the AO.
14	Time	To decommission demobilization camps.
15	Percent	Difference between planned construction report requirements and actual requirements in the AO.
16	Percent	Of planned engineer construction support capability realized in AO.
17	Percent	Of engineer construction support provided by host nation.
18	Percent	Of engineer construction projects damaged by combat action or natural disaster.
19	Percent	Of preventative maintenance activities completed based on the recommended activities from each systems owner's manual or generally accepted maintenance standards such as the American Society of Heating, Refrigerating, and Air Conditioning Engineers.
20	Percent	Of permanent facilities emplaced or constructed.
21	Number	Of water wells drilled in AO.
22	Number	Of storage facilities constructed in AO.
23	Number	Of pipelines constructed in AO.
24	Number	Of fixed facilities constructed or renovated in AO.
25	Number	Of square meters of temporary storage facilities emplaced or constructed per day.
26	Number	Of facilities holding enemy prisoners of war per current international conventions and standards.

Supporting Collective Tasks:

Task	Title	Proponent	Echelon
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No.			
01-2-5223	Perform Mission Command Functions	01 - Aviation/Aviation Logistics (Collective)	Company
05-1-0716	Prepare a Construction Estimate	05 - Engineers (Collective)	Battalion
05-1-0718	Issue a Construction Directive	05 - Engineers (Collective)	Battalion
05-1-0725	Site-Adapt a Standard Construction Design	05 - Engineers (Collective)	Battalion
05-2-5250	Perform Construction Operations	05 - Engineers (Collective)	Company
05-2-5811	Conduct Underwater Excavation	05 - Engineers (Collective)	Company
05-2-5812	Conduct Dredging Operations	05 - Engineers (Collective)	Company
05-3-5110	Perform Lifting and Loading Operations	05 - Engineers (Collective)	Platoon
05-3-5166	Repair an Existing Water Well	05 - Engineers (Collective)	Platoon
05-3-5168	Employ Fishing Tools and Techniques	05 - Engineers (Collective)	Platoon
05-3-5170	Establish a Water Well	05 - Engineers (Collective)	Platoon
05-3-5201	Construct a Bridge Abutment	05 - Engineers (Collective)	Platoon
05-3-5210	Construct a Sewerage System	05 - Engineers (Collective)	Platoon
05-3-5211	Construct a Water Distribution System	05 - Engineers (Collective)	Platoon
05-3-5212	Construct Electrical Utilities	05 - Engineers (Collective)	Platoon
05-3-5220	Construct a Wood Frame Structure	05 - Engineers (Collective)	Platoon
05-3-5222	Construct a Steel-Frame Pre-engineered Structure	05 - Engineers (Collective)	Platoon
05-3-5223	Construct a Concrete Structure	05 - Engineers (Collective)	Platoon

05-3-5230	Perform Preventive Maintenance on Building Systems	05 - Engineers (Collective)	Platoon
05-3-5231	Replace Damaged Airfield Matting	05 - Engineers (Collective)	Platoon
05-3-5722	Prepare Power Systems Construction Estimates	05 - Engineers (Collective)	Platoon
05-3-5725	Install Aerial Electrical Power Distribution Equipment	05 - Engineers (Collective)	Platoon
05-3-5727	Install Underground Distribution Equipment	05 - Engineers (Collective)	Platoon
05-6-0715	Coordinate Construction Operations	05 - Engineers (Collective)	Brigade