



By Captain Matthew Louvet

A contemporary operating environment forces today's leaders to truly be flexible and adaptive and to take initiative in completing all assigned missions. My own experience as a combat engineer company commander in Iraq reinforced the need to be able to adapt—accounting for the enemy, the terrain, and the mission—to the full spectrum of combat requirements. Engineer Soldiers and their leaders, uniquely skilled and equipped, must be prepared to execute combat operations to include “traditional” engineer tasks in an urban environment and, when required, to “put down the shovel and pick up the rifle” and “fight as engineers.”

Much of my own experience in Iraq was in fighting as an engineer. Field Manual (FM) 7-8, *Infantry Rifle Platoon and Squad*, served as a solid foundational document during predeployment training and on-the-ground mission preparations. This manual provides the necessary information, laid out in a very comprehensible format that can be adapted to fit almost any situation. Two additional references that are useful are FM 3-06.11, *Combined Arms Operations in Urban Terrain*, and Army Training and Evaluation Program (ARTEP) 71-1-MTP, *Mission Training Plan for the Tank and Mechanized Infantry Company and Company Team*.

Engineer companies must be capable of conducting urban combat operations such as raids and cordon-and-search missions. Both are complex and require dedicated planning and focused mission rehearsals before execution. Enabling tasks for these operations include hasty- and deliberate-planning processes, knowledge and understanding of the rules of engagement (ROE), direct-fire planning tools, distribution of graphics, and communications procedures that feed a common operational picture to enable true situational awareness.

As engineers prepare to conduct these missions, the tasks listed in the table below become required training. Engineer leaders must be ready to conduct these missions either as part of a combined arms team or as a ground-mission commander. They must understand the capabilities and limitations of

Enabling Tasks for Raids and Cordon-and-Search Operations		
Unit Level	Task Number	Task
Company	71-2-0308	Conduct a Raid
Company	71-2-2027	Conduct a Cordon-and-Search Operation
Collective Task	71-2-0320	Infiltrate/Exfiltrate
Collective Task	71-2-0221	Execute Actions on Contact
Collective Task	71-2-0222	Conduct Fire and Movement
Collective Task	71-2-0219	Attack by Fire
Collective Task	71-2-3061	Support by Fire
Collective Task	71-2-0322	Withdraw From Enemy Contact
Collective Task	71-2-2025	Clear a Built-Up Area
Collective Task	71-2-2324	Conduct Roadblock/Checkpoint Operations
Platoon Task	7-3/4-4113	Knock Out a Bunker
Platoon Task	7-3/4-4114	Clear a Trench Line
Platoon Task	7-3/4-4110	Clear a Building
Leader Task	061-283-6003	Adjust Indirect Fire



Combat engineers work on one of many construction projects.

task-organized units and how to best employ all team members to achieve mission success.

Raids, cordon-and-search operations, and tactical patrols (mounted and dismounted) are typical “fighting engineer” missions requiring detailed planning and using available forces correctly. The engineer commander must task-organize his force based on the target, the objective area, and the capabilities of his units. Required equipment includes building marking materials, detainee binding materials, detainee processing forms, and detailed target folders with pictures. Engineers need training on ROE, stack drills, room and building clearance procedures, and proper search and detainee handling procedures. Leaders must be flexible enough to transition from one mission to another based on enemy contact or the availability of actionable intelligence. For example, there were several occasions when platoons on patrol had to shift their focus and conduct raids. The majority of the raids conducted

were hasty with nonorganic units embedded into the patrol. These were “pickup teams” in every sense—enabled by capable leaders and well-known battle drills.

Tactical operations that integrate Iraqi security forces are becoming increasingly important for coalition forces. The toughest cordon-and-search operation that my company participated in included elements from a Macedonian special forces unit, the Iraqi civil defense corps, and the battalion headquarters. All inherent differences between these three units had to be worked out during the planning and execution of missions. Fire control, communications, common language and terms, and the integration of diverse units with varying skills and training readiness all had to be addressed to lower the risk. Detailed planning and rehearsals ensured safe and successful mission execution.

Engineer units are tasked to run combat patrols and establish traffic control points (TCP) during patrols. Leaders must brief all aspects of the mission and incorporate rehearsals into the mission timeline. Establishing a TCP is a planned event and requires wire, pickets, interpreters, detainee binding materials, detainee processing forms, phrase cards, and the local area be-on-the-lookout (BOLO) list with pictures. Related training includes establishing and manning checkpoints, conducting individual searches, conducting vehicle searches, and understanding ROE.

Although guard duty is not the most difficult job, it is a common task that must still be accomplished for the security of the unit. Living on a forward operating base (FOB) requires that the unit occupy at least a portion of the guard positions. Tasks that the engineer Soldier must know how to perform include completing range cards, completing a proper sector sketch, and conducting adjacent unit linkup to ensure overlapping fields of fire. Other tools needed include thermal sights, a compass (for reporting visual contact outside the perimeter and correctly filling out the range cards), and some type of communications device.

Manning an entry control point (ECP) on an FOB requires all the tasks and tools that are needed for guard duty plus some others. Part of manning an ECP is guarding it from unauthorized entry. The ROE must be understood at all levels—especially at an ECP with a high volume of traffic (both military and civilian). Language and proper use of an interpreter are



An engineer Soldier uses a handheld mine detector.

other specific types of training that would benefit Soldiers and leaders at an ECP. Wire is a necessary item if establishing an ECP but—as upgrades continue—HESCO® Bastions and concrete barriers provide additional force protection. Search areas at an ECP require mirrors for searching under vehicles and metal-detecting wands for personal searches. If the ECP is to continue operations during limited visibility, floodlights and flashlights for mirrors also need to be considered.

Combat engineers must be prepared to conduct general engineering tasks. Engineer leaders will routinely be required to conduct force-protection assessments and limited construction projects and have a working knowledge of project management. While most of my assigned construction missions were limited in scale, subordinate leaders needed the necessary skills and tools to be able to draw up a plan for the project, determine the bill of materials, supervise the construction, and conduct quality assurance and quality checks of the project.

Engineers must similarly have a working knowledge of basic environmental infrastructure—sewage, water, electricity, academics, and trash (SWEAT)—and some simple assessment checklists to determine project requirements. Engineers should have a working knowledge of how these systems work or at least the ability to acquire informational references. Leaders should look for what is currently in place, working, broken or missing, and needed to get the system running again to benefit the local area.

Breach and mine-detector teams are two specialty teams that the engineers can provide to both the raid and the cordon-and-search missions. These teams can vary in size, depending on forces available and the mission requirements, but they

each require a dedicated security element. The breach teams need to be trained in all manual, mechanical, and dynamic-entry techniques and methods to evaluate structures to determine the suitability of each. In addition to explosives, breach teams need a manual breach kit, including a man-packable, collapsible ladder. The mine-detector teams need to understand their equipment, to include correction operations procedures and system limitations. My company was often a force provider for combined arms missions, sending mine-detector teams with other units to find caches.

Terrain analysis continues to be a necessary and relevant skill for engineers. On numerous occasions, TerraBase, FalconView™, and MrSID® provided us with information on an area for combat operations so that we never went in unprepared. Additionally, these programs allowed us to evaluate our guard locations, ECPs, and guard towers and assess key terrain along lines of communication based on line-of-sight analysis and weapons range fans.

Engineers must always be ready to conduct technical and tactical reconnaissance. Whether assessing route trafficability or conducting bridge-span and load calculations, engineers in my company were regularly reminded of the technical requirements of their craft. Additionally, the requirement for tactical reconnaissance to identify threats to friendly mobility—whether enemy or improvised explosive devices (IEDs)—was an implied task for every movement and an increasingly important component of the unit's troop-to-task analysis.

As the Regiment continues its transformation, the key to success will be its leaders. The Regiment needs competent, confident, and flexible Soldiers and leaders empowered to take the initiative in any scenario. Engineer leaders must be properly skilled in unique, technical capabilities; trained and ready for full-spectrum operations; and equipped for success in traditional engineer tasks. When required—engineer leaders must fight as engineers. The Soldiers and leaders in my own unit, as well as those who fill the ranks of the Engineer Regiment, demonstrate daily that they are up to the task. *Essayons!*



Captain Louvet is the officer in charge of the Scorpion Team at the National Training Center, Fort Irwin, California, serving as a staff engineer trainer. Other assignments include Commander, Charlie Company, 5th Engineer Battalion, during Operation Iraqi Freedom in support of the 4th Infantry Division. He holds a bachelor's in wildlife resource management from West Virginia University and a master's in geology and geophysics from the University of Missouri-Rolla.



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