Chapter 1

MAGTF Engineering

The role of today’s engineers in Marine air-ground task force (MAGTF) operations was founded in the needs and experiences of World War II. Geographic isolation and dispersion of objectives compounded with the limits of then existing technology required the ability to improve remote sites in order to effectively use these locations to prosecute the war.

This new mission requirement for the Marine Corps meant creating organic units with the specialized equipment and training needed to support the existing warfighting mission. This necessity for engineering support also led to the Naval Construction Force (NCF) becoming integral to some Marine engineering operations. By the end of the war, engineering had progressed to the level of providing warfighting skills that allowed commanders to modify the battlespace to their advantage through the applications of mobility, countermobility, survivability, and general engineering.

Today, the combat engineer brings both constructive (e.g., building bunkers, providing utilities) and destructive (e.g., demolition, breaching) support capabilities to the battlefield. This unique combination of diametric capabilities provides knowledge, experience, and skills to commanders at the operational and tactical levels with which they can, for example, reduce friction, facilitate maneuver, and improve the morale of friendly forces or create friction and disorder for the enemy. Examples of these include maintaining roads to reduce maintenance of motor transport assets or providing showers to front-line combatants. Establishing obstacles or destroying existing roads or bridges can inhibit the enemy’s ability to quickly maneuver forces in the attack or defense. Modifications to the physical battlespace permits commanders to achieve faster tempo and better focus of military power. Examples of these would be the establishment of forward arming and refueling points (FARPs) to reduce turnaround time of aviation assets or reinforcing an infantry position with obstacles, bunkers, and mines. This allows a commander to shift combat power to another location to support a main effort while minimizing risk by not compromising security of the remaining forces.

Although current doctrine calls for attacking and exploiting the enemy’s vulnerabilities, factors outside of the commander’s control (e.g., time, terrain, weather, the enemy’s actions) can force commanders into actions against enemy strengths. Combat engineers earn their title most notably through assault breaching of enemy fortifications or by their contribution of firepower in the form of provisional infantry support. These capabilities can be decisive in maintaining momentum in the attack or responding quickly to the enemy’s actions or reactions. In military operations other than war (MOOTW) engineers play a significant role in diverse situations such as disaster recovery, humanitarian relief, and peacekeeping operations. These are a few examples of when an engineer unit can bring to bear its unique skills and capabilities to support commanders in achieving their mission(s).

MAGTFs normally contain engineer units in each of their major subordinate commands. The engineers found in a MAGTF are engineer staff personnel in the command element (CE), a combat engineer unit supporting the ground combat element (GCE), a support engineering unit supporting the aviation combat element (ACE), and a support engineering unit in the combat service support element (CSSE). Task force mission requirements may require augmentation of the engineering assets with NCF. See figure 1-1, on page 1-2. As part of mission planning, a MAGTF commander may elect to task-organize certain capabilities (e.g., engineers, artillery, and reconnaissance units) to support the concept of operations for specific operations or missions.
MAGTF ENGINEER STAFF

The MAGTF commander’s staff engineers develop engineer policy, guidance, and standards for the engineer effort throughout the battlespace. The engineers are the focal point for planning, monitoring, and coordinating engineer efforts supporting air, ground, and combat service support operations and providing engineer assistance to the principal staffs. The engineers are responsible for estimating, recommending, and determining requirements and preparing engineer annexes and detailed plans for publication.

Organization

The number of engineers in the MAGTF command elements will depend upon the mission, structure of the MAGTF, and the magnitude of engineer effort. MAGTF tables of organization (T/Os) provide for engineers and will likely be staffed based on expected missions. When the MAGTF command element is the nucleus of a joint force or combined headquarters, the engineer staff can be augmented with other U.S. or allied service engineers to provide the necessary personnel and experience required to conduct complex joint force and multinational operations. Because engineers are normally located in several sections of the headquarters, they can provide great flexibility in orchestrating diverse engineer operations and allow for the greatest visibility of engineer capabilities, requirements, and responsibilities.

Functions

The engineers must work closely with other staff sections to integrate engineer considerations and requirements into all phases of planning and execution. These phases include—

I Intelligence. Throughout the intelligence cycle, the engineers assist the G/S-2 in coordinating intelligence requirements. The engineers provide technical assistance in identifying, prioritizing, and validating engineer intelligence needs and in coordinating the collection of engineer information (see chapter 2).

I Operations. The engineers monitor the deployment, employment, and mission status of MAGTF engineer forces. The engineers focus the use of engineer capabilities to support the concept of operations. It is vital that engineers maintain situational awareness of the maneuver forces’ current and future courses of action (COAs) so that existing facilities (e.g., main supply route (MSR), tunnels, and bridges) do not constrain their
proposed actions. During the targeting process, the engineers provide engineer target and risk analysis to help minimize the destruction of facilities so the damage does not exceed our ability to repair them for use in future operations.

Plans. The engineers work with the planners to maintain knowledge of future plans and their implications for engineer requirements. Engineer planners will identify all potential engineer requirements (e.g., mobility, countermobility, survivability, topographic support, civil-military operations support, facilities, real estate, real property maintenance, engineering services, environmental control, and construction support) during the planning process. Chapter 3 provides information on potential engineer requirements.

Facilities. A real property entity consisting of one or more of the following: a building, a structure, a utility system, pavement, and underlying land. (JP 1-02) The engineers coordinate facility services for the MAGTF and organizations supporting the MAGTF in the area of operations (AO).

Real Estate. The engineers are responsible for obtaining property during operations, based on the law of land warfare, host nation agreements, or other agreements. Property is obtained based on MAGTF facility requirements. Property is seized only when it is imperative to the necessities of war. Priorities for property acquisition are established based on the time the property is needed.

Real Property Maintenance. The engineers manage the leased properties and facilities so they are maintained according to the conditions of the lease, and that the property meets its functional purpose.

Construction. The engineers monitor the construction efforts of the MAGTF engineer forces, and based on commander’s guidance, formulates construction policies, priorities, and standards.

Environmental Considerations

Operations should be planned and conducted with appropriate consideration for their effects on the environment in accordance with applicable U.S. and host nation agreements, environmental laws, policies, and regulations. Engineers are responsible for coordinating the environmental protection effort in the AO. Engineers assist the MAGTF commander in coordinating environmental protection efforts in the AO. Environmental concerns are a part of any operation to include policies originating in the U.S., host nations, and allied forces. Specifically, engineers may be required to advise commanders how to minimize adverse effects of operational plans or how to resolve existing situations created by friendly or enemy forces.

Logistics

Engineers manage the bulk storage of fuel and water throughout the AO. Additionally, the engineers also assist logistics forces in monitoring the inventory and flow of Class IV material and recommend reordering levels.

Explosive Ordnance Disposal

Engineers are normally responsible for planning and coordinating explosive ordnance disposal (EOD) support. These activities include incidence response, area clearance operations, and foreign ordnance exploitation.

ENGINEER ORGANIZATIONS IN THE GROUND COMBAT ELEMENT

The combat engineer battalion (CEB) is the Marine division commander’s organic combat engineering force. The CEB enhances the momentum and tempo of maneuver units and helps shape the battlespace for the Marine division. The battalion supports task-organized ground combat elements with combat engineer support to meet mobility, countermobility, and survivability requirements during offensive and defensive operations.

Mission

The CEB’s mission is to enhance the mobility, countermobility, and survivability of the Marine division through combat and limited general engineering support. The CEB performs the following tasks:

1. Conduct engineer reconnaissance to support the division’s intelligence collection plan.
1. Plan, organize, and construct obstacle systems.
1. Plan, organize, and conduct breaching operations.
1. Conduct demolition operations beyond the ability of other division units.
Employ assault bridging and other standard bridging systems when augmented with equipment and trained personnel.

- Provide expedient repair and reinforcement of existing bridges.
- Construct expedient short span bridges from local material.
- Construct and maintain limited combat roads and trails in support of division operations (construction and maintenance requirements are limited to those that can be performed with organic equipment and personnel).
- Provide mission essential temporary vertical and horizontal construction.
- Provide provisional infantry.

**Organization**

Figure 1-2 illustrates the CEB organization.

**Command and Control**

The battalion commander organizes the battalion staff to enable command and control of the battalion and any engineer reinforcing elements (e.g., support from engineer support battalion). Collection efforts of higher and subordinate units, external agencies, and the battalion’s S-2 are integrated to meet all intelligence requirements. The CEB intelligence officer actively participates in the engineer portion of the division intelligence collection effort. The battalion is capable of self-administration.

**Firepower**

The CEB’s organic firepower consists of individual weapons, machine guns, and light antiarmor weapons.

**Transportation**

The battalion requires motor transport support to move the battalion as a unit. However, there are adequate ground transportation assets (e.g., medical and logistic support vehicles including heavy trucks) organic to the battalion to accomplish its primary mission. Most of the battalion’s engineer assets require surface transportation; however, some engineer equipment is helicopter transportable.

**Combat Service Support Capabilities**

Combat service support (CSS) capabilities provide—

- Organic supply support.
- Organizational (1st and 2d echelon) maintenance on organic equipment. Intermediate (3d and 4th echelon) maintenance is provided by Maintenance Battalion, force service support group (FSSG).
- Organic transportation support required to accomplish its mission.
- Limited general engineering capability.
- Routine and limited emergency medical support to the battalion.
- Administrative, postal and chaplain support to the battalion.

**Concept of Employment**

The CEB organizes to support the engineering requirements of the division. The battalion can task-organize elements in support of subordinate units or can mass to concentrate engineer effort. If ground operations require decentralized combat engineering, the CEB still supports engineer requirements behind the forward line of own troops (FLOT).
For planning and training purposes, each combat engineer company maintains a traditional direct support relationship with an infantry regiment or a regimental landing team (RLT) and each subordinate combat engineer platoon regularly supports an infantry battalion or battalion landing team (BLT). However, in planning for contingencies, a regiment or RLT may require a CEB (-) vice a reinforced company to provide broader scope and greater depth for tactical mobility and other combat engineering support. Combat engineer units are typically reinforced by elements of engineer support and headquarters and service (H&S) companies to provide the full spectrum of combat engineer support. Likewise, engineering support to a BLT can be increased. The fourth combat engineer company of the CEB is normally kept in general support of the division. Traditional support relationships can be altered if mission analysis indicates that combat engineer support to other units (e.g., tanks company, assault amphibious vehicle [AAV] company, light armored vehicle [LAV] platoon) is more efficient. Mission, enemy, terrain and weather, troops and support available-time available (METT-T) is always considered in task-organizing and attaching combat engineer units to best support the concept of operations.

If the requirement for combat engineer support exceeds the capability of the CEB, engineer support battalion (ESB) assets located in the CSSE provide reinforcement. The ESB, NCF, U.S. Army, host nation or other sources can also provide general engineering support capabilities beyond those organic to the CEB.

The scope of division combat operations may require reinforced combat engineer companies to directly support infantry or other task groups. This direct support relationship permits efficient control, maximizes productivity, and reduces administrative and logistical burdens. Direct combat engineer support of a maneuver company should be for limited duration and for specific tasks.

**Headquarters and Service Company**

**Mission.** The primary mission of the H&S company is to provide command, control, and administrative support for the battalion. This includes the provision of supply, food services, communications, chaplain services, and medical support.

**Concept of Employment.** The H&S company decentralizes its support functions of supply, communications, medical, chaplain, and messing to the extent necessary to meet battalion operational requirements. The company headquarters directs and controls all matters regarding internal administration, logistics, and security of the company.

**Combat Engineer Company**

**Mission.** The mission of the combat engineer company is to enhance the mobility, countermobility, and survivability of the supporting ground combat element with combat engineering.

**Concept of Employment.** A combat engineer company normally operates under the control of the CEB commander when the battalion headquarters is ashore. The company may operate under the centralized control of the company commander or be in widely dispersed areas with the platoon commanders exercising more direct control of the companies assets, and the company commander acting as advisor to the infantry regimental commander. Additionally, combat engineer companies can provide general support to the division and other task-organized maneuver units (e.g., light armored reconnaissance, tank, and AAV battalions).

**Engineer Support Company**

**Mission.** The mission of the engineer support company is to provide personnel and equipment or task-organized heavy equipment, utilities, maintenance, and motor transport support to other elements of the battalion.

**Concept of Employment.** The engineer support company provides essential engineering support in the forward areas and supports all CEB functional responsibilities. The company employs specialists, as individuals or in small units, for a specific mission in support of the combat engineer companies, however, the company is normally centrally controlled by the CEB commander.

**ENGINEER ORGANIZATIONS IN THE AVIATION COMBAT ELEMENT**

The MAGTF requires responsive support to the landing force (LF) during all phases of an amphibious operation and subsequent operations ashore. To support the MAGTF, the ACE must be capable of operating from sea- and shore-based
airfields. To operate in a variety of forward-based environments requires a full range of aviation ground support (AGS) capabilities which are organic to the ACE. When an ACE operates from the sea or a forward base, AGS is essential to operations.

To provide AGS to the ACE requires organic task-organized units. In the Marine aircraft wing, the Marine wing support groups (MWSGs) and their subordinate Marine wing support squadrons (MWSS) are responsible for providing AGS. The following functional areas of support comprise AGS and the services provided by the MWSG and/or MWSS. These 13 functional areas are further categorized under two main categories: ground services support and air base services support.

**Ground Services Support**

Ground services support are activities and tasks necessary to establish and maintain base camp operations associated with an airfield. The following AGS functions are under ground services support:

- Internal airfield communications.
- Construction.
- Utilities.
- Materials handling equipment.
- Motor transport.
- Field messing.
- Medical services.
- Law enforcement services.

**Air Base Services Support**

Air base services support are activities and tasks necessary to establish and operate tactical air bases. The following AGS functions are found under the air base services support:

- Explosive ordnance disposal.
- Aircraft rescue and firefighting.
- Aircraft recovery services.
- Fuel services.
- Weather services.

**The Marine Wing Support Group**

Engineer support is integral to the success of the ACE. Ground services and air base operations require extensive engineer support. The MWSG and MWSS engineer section provides engineering support for forward-based air operations.

**Mission.** The MWSG provides essential AGS to the Marine aircraft wing (MAW) and its components. MWSG engineer assets support airfield operations and aviation combat elements in both expeditionary and fixed-base locations. Engineer tasks and functions performed by the MWSG are primarily general engineering oriented.

**Organization.** Four squadrons compose the MWSG. All squadrons routinely operate in direct support of the MAW, and are structured to provide AGS for one airfield and two remote sites. The Personnel Support Detachment (PSD) provides administrative support to the MWSG and its squadrons (See figure 1-3).

![Figure 1-3. Organization of the MWSG.](image-url)
Command and Control. The MWSG normally has four support squadrons, two for fixed-wing aircraft and two for rotary wing aircraft. Each squadron provides direct support to a designated Marine air group (MAG).

Firepower. The MWSG’s firepower consists of individual weapons for self-defense purposes only.

Mobility. Adequate ground mobility (command, medical, and logistic support vehicles including heavy trucks) is organic to the MWSG. The MWSG requires external transportation support to effect displacement of the entire unit.

Combat Service Support Capabilities. CSS capabilities provide—

- Organic supply support.
- Organizational (1st and 2d echelon) maintenance on organic equipment. Intermediate (3d and limited 4th echelon) maintenance is provided by Maintenance Battalion, FSSG.
- Organic transportation support required to accomplish its mission.
- Organic engineering support required to accomplish its mission.
- Routine and limited emergency medical support.
- Airfield security and law enforcement services.

Concept of Employment. The MWSG provides essential AGS for the MAW and organizes to provide one or more MWSS’s in support of a designated fixed-wing and/or rotary wing component of an ACE. MWSG maintains decentralized control of support squadron operations, except for squadrons collocated with or near the MWSG headquarters. The MWSG and its subordinate elements provide a wide variety of AGS of which engineering is only a portion. Since the bulk of the engineering support required is general engineering oriented, the MWSG is assisted by the ESB and the naval mobile construction battalions (NMCB) as required.

Marine Wing Support Squadron

Mission. The MWSS provides essential AGS support to a designated fixed-wing and/or rotary wing component of an ACE and supporting or attached elements of the Marine air control group.

Organization. The MWSS is an integral part of the ACE. Both fixed-wing and rotary wing support squadrons organize identically with only slight variations in their authorized tables of equipment and personnel. The MWSS, as shown in figure 1-4, consists of a squadron headquarters, executive staff (S-1 through S-4), military police and flight line security department, and equipment maintenance department. The S-3 holds staff cognizance over internal airfield communications, airfield operations

Figure 1-4. Organization of Marine Wing Support Squadron.
division, motor transport operations division, and engineer operations division. The S-4 holds staff cognizance over food services, medical, supply, maintenance, and fiscal divisions.

The engineer operations division of the MWSS organizes to provide limited combat and general engineering support to designated components of the ACE. Engineers located in the airfield operations division receive, store, and dispense aviation and ground fuels from various types of expeditionary fuel systems.

The engineer operations division is capable of—

I Providing engineer reconnaissance and survey.
I Repairing, improving, and maintaining existing road networks for the ACE.
I Constructing and maintaining expedient roads.
I Constructing, maintaining, and improving vertical or short takeoff and landing sites.
I Constructing and maintaining mission essential base camp requirements (temporary bunkers, aircraft revetments, and strongbacks).
I Providing technical and equipment assistance for erection of pre-engineered buildings.
I Providing utilities support (mobile electric power, water, potable water production, bath and laundry facilities, and refrigeration services).
I Developing, improving, and maintaining drainage systems.
I Providing technical assistance to support camouflage requirements.
I Assessing bomb damage and providing minimal rapid runway repair (RRR).
I Providing material handling equipment services.
I Providing for EOD.

Command and Control. The squadron commander performs command and staff functions necessary for planning, directing, and supervising assigned missions. The MWSS operates under the centralized control of the MWSS commander, however, task-organized units may provide direct support to forward airbases or FARPs.

Firepower. The MWSS’s firepower consists of individual weapons and machine guns.

Mobility. Organizational vehicles of the squadron provide sufficient transportation for command, control, and routine support activities. The squadron requires external transportation to displace as a unit.

Combat Service Support Capabilities. CSS capabilities provide—

I Organic ground supply support except for Navy funded equipment that requires support from a designated aviation supply element.
I Organizational (1st and 2d echelon) maintenance on organic equipment; intermediate (3d and 4th echelon) maintenance is provided by maintenance battalion, FSSG.
I Sufficient motor transport equipment to accomplish its mission.
I Limited general engineering capability required for the squadron’s mission.
I Routine and limited emergency medical support.
I Service company, H&S battalion, FSSG, provides service support.

Concept of Employment. The MWSS provides all AGS, including engineering, to designated components of the ACE and simplifies command relationships by providing a single commander for all matters pertaining to AGS.

ENGINEER ORGANIZATIONS IN THE COMBAT SERVICE SUPPORT ELEMENT

The multitude of tactical engineer tasks required to support air and ground forces far exceed the organic engineer capabilities of the Marine division and wing. Simultaneously, at the operational level of war, the force must be able to move between engagements and battles within the context of the campaign. Creating operational mobility requires the synergism of the entire MAGTF; its engineers are vital to that effort. By physically shaping the space between the battles, engineers enable the force to rapidly move at will—generating tempo and momentum. Additionally, operational logistics involves the creation of a logistical delivery system sufficient to sustain the force throughout the length of the campaign and the breadth of the theater or area of operations. Marine and Navy engineers aid the operational logistics effort by creating and maintaining the lines of communication and facilities sufficient to support the movement of those resources.
The Engineer Support Battalion

The ESB exists to provide a combat engineering capability for the entire MAGTF. The battalion provides the initial engineering support necessary to meet the combat and general engineering, bulk liquid, and utility support requirements of the MAGTF.

Mission. The mission of the ESB is to provide combat engineering and limited general engineering, bulk liquid, and utility support to the MAGTF. The ESB performs the following tasks:

- Combat engineering support.
- Standard and nonstandard bridging.
- EOD support.
- Handling, storing, and dispensing bulk fuel (Class III and Class III[A]).
- Tactical utility support.
- Expeditionary vertical and horizontal construction.

Organization. Figure 1-5 shows the organization of the ESB. The Bridging Company may be found assigned as a Reserve unit vice an active fleet asset.

Command and Control. The staff administers, directs, and supervises operations of the battalion and engineer reinforcing elements. The battalion normally operates under the centralized control of the battalion commander. Engineer companies and platoons are sometimes attached to combat service support detachments in order to provide direct support to units throughout the MAGTF.

Firepower. The ESB’s firepower consists of individual weapons, machine guns, and light antiarmor weapons.

Mobility. Adequate ground transportation to move essential command and operational elements is organic to the battalion. External motor transport support is required to move all assets (e.g., bulk fuel [Classes III and Class III (A)], bulk water, bridging, and heavy engineer equipment).

Combat Service Support Capabilities. CSS capabilities provide—

- Organic supply support.
- Organizational (1st and 2d echelon) maintenance on organic equipment; Intermediate (3d and 4th echelon) maintenance support is provided by maintenance battalion, FSSG.
- Organic transportation support required to accomplish its mission.
- Limited general engineering support.
- Routine and limited emergency medical support to the battalion.
- Administrative, postal, and chaplain support to the battalion.

Concept of Employment. The ESB provides combat and limited general engineering in general support of the MAGTF. The battalion can provide separate units to support specific requirements; i.e., a combat engineer company to reinforce the CEB or MWSG. The battalion regains operational control of all of its committed assets when the FSSG is established ashore. Operating under centralized control, the battalion gives depth to the overall engineering effort by providing the GCE and ACE engineer support that exceeds their organic capabilities. The battalion works in concert with the NCF to provide comprehensive engineer support to the MAGTF.

Figure 1-5. Organization of the Engineer Support Battalion.
Headquarters and Service Company

**Mission.** The mission of H&S company is to provide command and control, administration, and command support functions for the ESB. The H&S company also provides EOD support to the MAGTF.

**Concept of Employment.** The H&S company provides the necessary command and control and command support functions for the coordination of battalion operations. Additionally, it provides EOD support to the MAGTF by providing EOD personnel to fill T/O requirements or task-organized EOD teams to support specialized missions.

Engineer Support Company

**Mission.** The mission of the engineer support company is to provide direct maintenance support for specified equipment organic to the battalion, direct transportation and services support to the battalion, and general support and/or reinforcing augmentation to the combat engineer companies of the battalion. The engineer support company is responsible for maintaining and providing—

1. Engineer equipment for all units of the battalion.
2. Utility support throughout the MAGTF.

**Concept of Employment.** The engineer support company provides task-organized elements as part of a battalion unit that is capable of rendering combat engineering, general engineering, and utilities capabilities to the MAGTF.

Combat Engineer Company

**Mission.** The combat engineer company provides combat engineering and limited general engineering support to the MAGTF.

**Concept of Employment.** The company normally operates under the centralized control of the ESB but can operate independently when reinforced with equipment and personnel.

Bridge Company

**Mission.** The mission of the bridge company is to provide standard bridging and ferrying support to enhance the mobility of the MAGTF.

**Concept of Employment.** The bridge company provides standard prefabricated bridge and ferry assets for the supported unit and limited construction manpower. When necessary, combat engineer companies or other labor sources within the supported organization construct bridges and ferries from bridge company assets.

Bulk Fuel Company

**Mission.** The mission of the bulk fuel company is to receipt, store, and provide limited distribution of bulk fuel (Class III and Class III [A]) to MAGTF elements.

This support includes—

1. Distribution to, but not within, air bases during amphibious operations and subsequent operations ashore.
2. Distribution of Class III (A) products of the required type, quality, and purity to supported air elements.

**Concept of Employment.** The bulk fuel company provides detachments to the MAGTF’s CSSE. During amphibious operations, bulk fuel company elements are responsible for receiving fuel from lines established by the amphibious construction battalion of the naval beach group at the high water mark. The amount of fuel required and the systems necessary to support the requirement determine detachment size. Smaller detachments can use components of the expeditionary refueling system (e.g., 500-gallon fabric fuel tanks) to establish forward vehicle refueling points using either ground or helicopter transportation. Normally, the entire company deploys to support a MEF.

Explosive Ordnance Disposal Platoon

**Mission.** The EOD platoon’s mission is to neutralize hazards associated with unexploded U.S. and foreign ordnance and to disseminate technical information on enemy weapons and explosive ordnance material. This includes detection, identification, recovery, evacuation, and disposal of items of unexploded ordnance. Disposal can include disarming, destruction onsite, or removal and destruction off site. Ordnance types include—

2. Improvised.
3. Nuclear.
4. Biological.
5. Chemical.
6. Weapons situated in such a manner as to constitute a hazard to personnel, installations, material, or operations that are beyond the
capabilities of other components of the MAGTF organizations to neutralize.

EOD personnel support the MAGTF by providing—

- Enhanced mobility through ordnance disposal (conventional, improvised, nuclear, biological, and chemical [NBC]).
- Foreign ordnance information and/or intelligence through collection, evaluation, and exploitation.
- U.S. ordnance information and/or intelligence through collection, evaluation, and exploitation.
- Direct action (DA) role supporting MEU (SOC [special operations capable]) operations.

**Concept of Employment.** The EOD platoon provides task-organized teams to the combat service support element of the MAGTF.

**Naval Construction Force**

Joint Pub 4-04, *Joint Doctrine for Civil Engineering Support*, describes the basis for NCF support to the Fleet Marine Forces stating (see also publications MCWP 4-11.5/NWP 4-04.1, *Seabee Operations in the MAGTF*):

In addition to, or coincident with, component missions specified by the Commander in Chief (CINC), the Navy provides general engineering support to MAGTFs. This support consists of NCF units under the operational control of a MAGTF. These NCF units are necessary to reinforce and augment the MAGTF’s limited engineering capability. They are integral to the organization of the MAGTF and ensure immediate and effective delivery of CSS tasks. [emphasis added]

**Terms of Reference**

Although an informal and deeply rooted relationship between Marines and Seabees existed since World War II, this relationship had no formal basis until 1 May 1987 when the Marine Corps and Navy adopted the terms of reference (TOR). The overall objective of the TOR is to achieve a coordinated program ensuring the full and effective use of Seabee capabilities when employed in support of MAGTF operations. An evolving document, the TOR provides a means to address and resolve matters of mutual concern related to Seabee operations in the MAGTF.

The TOR provides historical background for the relationship between Marines and Seabees and describes the Seabees’ organizational and functional capabilities, to include those Seabee units that would not normally be under the operational control of a MAGTF. It also establishes tactics, techniques, and procedures aimed at improving the interoperability of the Marines and Seabees. For details on the TOR, NCF organizations, and operations, see MCWP 4-11.5/NWP 4-04.1, *Seabee Operations in the MAGTF*.

**Mission.** Seabee units reinforce and augment the limited general engineering capabilities of the MAGTF and broaden the naval civil engineering spectrum of construction to enhance and sustain MAGTF operations ashore. Along with their general engineering efforts, Seabees also contribute military and amphibious assault construction support and enhance the MAGTF’s capability to provide disaster relief and forces for civic action operations.

**Concept of Operations.** As assets of Commander, United States Atlantic Fleet (LANTFLT) and Commander, United States Pacific Fleet (PACFLT), the Seabees consist of active and reserve operational units. Most units are under operational control (OPCON) of either Commander, Second Naval Construction Brigade (COMSECONDNCB) or Commander, Third Naval Construction Brigade (COMTHIRDNCB) which are type commanders reporting directly to the two fleet commanders. The backbone of the Seabees is the naval construction regiments (NCRs) and their highly capable NMCB. There are also several other types of Seabee organizations fulfilling varying roles and missions. Active NMCBs, deploying to four permanent overseas deployment sites, constitute forward presence for the Seabees. An additional four NMCBs are in homeport status at any time, training for upcoming deployments. The bulk of the NCF is reserve units that provide additional and specialized contingency engineering and construction capabilities.

**Naval Construction Regiment**

The NCR consists of two or more NMCBs and a CE operating in a specific geographic area or operating in support of a specific military operation. The NCR is the command and control element for all subordinate Seabee units assigned to support a MEF-sized MAGTF.

**Mission.** The mission of the CE is to develop construction plans, assign construction projects to NMCBs, and direct redistribution of units’
equipment and materials. The CE has a planning, estimating, and engineering capability above the NMCB’s.

**Organization.** Figure 1-6 illustrates the NCR organization.

![Figure 1-6. Observation of the Naval Construction Regiment.](image)

**Combat Service Support Capabilities.** Combat service support capabilities provide—

1. Organic supply support. The MAGTF G/S-4 coordinates procurement of Class IV materials for tasked projects undertaken by subordinate Seabee units.
2. Organizational and intermediate (first through fourth echelon) maintenance on engineer organizational equipment. Organizational (second echelon) maintenance of communications equipment and assigned weapons, less optical equipment.
3. Organic transportation support to accomplish assigned missions. However, additional support is required to displace an entire unit.
4. Construction engineering only.
5. Self-administration, limited organic disbursing, postal, security, legal, civil affairs, graves registration, and information systems support.
6. Food services support to itself only.

CSS has no capability for organic medical or dental capabilities, it is dependent on collocated MEF and/or NMCB medical and dental assets.

**Concept of Employment.** The NCR CE is task-organized and equipped for employment as an assigned force in support of MEF-sized operations when two or more NMCBs, operating in a specific area, are supporting the MEF. The NCR CE structure provides air- or surface-deployable elements in support of a specific military operation.

Generally, the NCR CE can—

1. Conduct operations in all climate extremes.
2. Maintain an organic table of allowance (TOA) capable of sustaining operations planned or envisioned under contingency or general war conditions for 60 days without resupply, except that Class I material is limited to 5 days, Class III is limited to 3 days, and Class V is limited to 15 days. Organic Class IV is limited to those materials required to construct the command element’s base camp. Resupply past the time frames noted is the responsibility of the supported MAGTF.
3. Perform its mission using basic individual protective measures in a chemical, biological, and radiological (CBR)-contaminated environment for 30 days.

Depending on the unit size and scope of the NCF support, an NCR (or NMCB) may be assigned OPCON to the FSSG or designated as a separate major subordinate command (MSC) by the MAGTF or MEF commander.

**Naval Mobile Construction Battalion**

The mission of the NMCB is to provide responsive military construction support to Navy, Marine Corps, and other forces in military operations; to construct and maintain base facilities; to repair battle damaged facilities and to conduct limited defensive operations as required by the circumstances of the deployment situation. It can also accomplish disaster control and recovery efforts when required. Specifically, the NMCB—

1. Performs tactical construction including pre-engineered buildings, bunkers, and towers; horizontal construction including unpaved roads and expeditionary airfields for fixed- and rotary wing aircraft consisting of mat runways and taxiways, helicopter landing areas, parking aprons, revetments, and FARPs; contingency staging facilities such as ammunition supply points (ASPs); power generation and water purification systems; beach improvements, beach exits, helicopter pads, and minor roads and camps; installation of standard bridging (e.g., medium girder bridges [MGBs]) and
non-standard bridging; and maintenance, repair, and construction of MSRs.

1. Performs base construction, to include pre-engineered buildings, concrete and masonry buildings, and steel and concrete non-standard bridging; horizontal construction including asphalt roads, asphalt and concrete runways, and paved storage, staging, or parking areas; and base power plant, sewage and water systems, water purification and desalination systems, and wire communication systems.

1. Performs construction engineering including surveying and drafting; materials testing; and planning, estimating, and designing for local expedient projects.

1. Performs specialized construction including well-drilling operations and other operations of limited scope (e.g., batch plant, quarry, rock crusher, dredging, block plant, sawmill, and pile driving operations).

1. Conducts war damage repair (WDR) and RRR operations to include repairs to base camp utility systems; Petroleum, oils, and lubricants (POL) and bulk liquid distribution and storage systems; and communications facilities.

The NMCB normally functions as an integral unit. The NMCB generally consists of a headquarters company, one equipment company, one shop and utilities company, and two to three general construction companies. See figure 1-7.

Combat service support capabilities provide—

1. Organic supply support. Procurement of Class IV materials for tasked projects is coordinated with the supported MAGTF G/S-4.

1. Organizational and intermediate (first through fourth echelon) maintenance for engineer organic equipment and for naval construction for a support unit (NCFSU) augmentation equipment, as well as organizational (second echelon) maintenance of communications equipment and assigned weapons, less optical equipment.

1. Organic transportation equipment to accomplish assigned missions and tasks.

1. Construction engineering

1. Routine and limited organic emergency medical and dental support. Has limited ancillary capability (e.g., laboratory and X-ray).

1. Self-administration, organic ship services, disbursing, postal, legal, chaplain, and graves registration services support. The NMCB is capable of providing food services support to itself and collocated NCF units.

The NMCB can function as an integral unit of the NCR or operate as a separate unit. The NMCB can

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**Figure 1-7. Naval Mobile Construction Battalion.**
provide task-organized detachments, up to 50 percent of its organizational size, to address specific support requirements. Nearly 85 percent of each NMCB can deploy as an air echelon via strategic airlift (approximately 87 C-141, 44 C-17, or 30 C-5 equivalent lifts), with the remaining 15 percent (known as the sea echelon) following via sealift. Additionally, the NMCB—

- Conducts operations in climate extremes ranging from cold weather to tropical or desert environments.
- Maintains an organic TOA capable of sustaining construction operations planned or envisioned under contingency or general war conditions for 60 days without resupply, except that Class I material is limited to 5 days, Class III is limited to 3 days, and Class V is limited to 15 days. Class IV is limited to those materials required to construct the NMCB’s base camp. Resupply past the time frames noted is the responsibility of the supported MAGTF’s G-4, to be coordinated through the cognizant NCR’s command element if the NMCB is task-organized in a naval construction regiment.
- Conducts construction operations in a MOOTW environment and in unsecured and isolated locations without protection of the supported MAGTF.

**SPECIALIZED COMMAND AND SUPPORT OF ENGINEER ORGANIZATIONS**

The concept of task organization dictates that the mission parameters drive the decision on the best way to organize MAGTF elements to support the mission. A number of combat and support organizations have proven effective in facilitating timely and adaptive engineer support. Two of those organizations, engineer groups and liaisons, can have a great impact on small- and large-scale engineer operations.

**Engineer Groups**

An engineer group is a large, task-organized unit of combat support and CSS units from available Marine Corps, NCF, and engineer attachments from other U.S. military forces and host nation assets. The group supports a specific operation and disbands at the end of the operation. The establishment of an engineer group to support operations requiring extensive engineer support can provide the MAGTF commander with better visibility of infrastructure requirements and development and greater flexibility managing scarce engineer resources.

**Liaison**

Liaison is not a specific command and control structure in normal MAGTF organizations, but it provides advantages to the commander that would not otherwise exist. Liaison is the contact maintained between military force elements to provide mutual understanding and unity of purpose and action. Liaison between maneuver forces and engineer units ensures identification of operational requirements and aids in resource management. Formal and informal contact between staffs and commands at higher, lower, adjacent, supporting, and supported command levels is essential to the planning and execution of military operations. Engineer staffs and commands should develop temporary and permanent liaison elements to facilitate engineer planning and effective communications.

The introduction of allied, host nation, and non-government engineer assets in the AO may require the use of liaison staffs. This enables the MAGTF commander to better understand and use all engineer support available in the AO. Political constraints, command structure, statutory restrictions, or other circumstances may prevent the MAGTF commander from exercising direct command over non-MAGTF assets. Liaison provides a means for commanders to efficiently coordinate and plan the use of these other assets while the existing command structure fulfills the commander’s request for support. Liaison staffs are an organizational structure, not under direct command, that monitor the MAGTF’s interest.