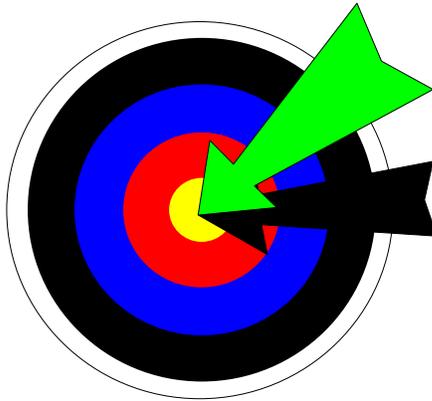


Fire Support

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Fire Support Planning and Coordination

Fire support planning is the continuous process of acquiring and analyzing targets, allocating fire support to targets, scheduling the attack of targets, and synchronizing all available fire support to achieve the commander's intent and to support the scheme of maneuver.

Fire support coordination is the process of executing the fire support plan. It too is continuous and occurs concurrently with the planning process during combat operations.

Principles of Fire Support Planning and Coordination

Plan early and continuously.

Follow the commander's targeting guidance.

Exploit all available targeting assets.

Consider the use of all available fire support means, lethal and nonlethal.

Use the lowest echelon capable of providing effective fire support.

Use the most effective means.

Furnish the type of support appropriate.

Avoid unnecessary duplication.

Consider airspace coordination.

Provide adequate fire support.

Provide rapid and effective coordination.

Remain flexible.

Provide for the safeguarding and survivability of friendly forces and installations.

The "WHAT" of Fire Support Planning and Coordination

Fire support planning is the continuous process of analyzing, allocating, and scheduling fire support. It determines how fire support will be used, what types of targets will be attacked, when they will be attacked, and with what means. The goal is to effectively integrate fire support into battle plans to optimize combat power. To do this, fire support planning is concurrent with battle planning. Planning must be flexible to accommodate the unexpected in combat and to facilitate rapid change. It anticipates the massing of fire support assets, changes in the force mission, realistic movement times, resupply, target acquisition, technical support, and the replacement of entire units. In fire support planning, the fire support coordinator (FSC) must consider three vital sets of information:

- w Commander's intent and/or scheme of maneuver.

- w Mission, enemy, terrain and weather, and troops and time available (METT-T).

- w Guidance from higher headquarters.

These three items cannot be considered separately. Each impacts on the others.

Commander's Intent: At each level, the FSC plans fires as the commander outlines his scheme of maneuver. The FSC must know *when* and *where* the commander wants fire support. He must fully understand *what* the commander wants in the way of effects, duration, and timing. To truly understand the commander's intent, the FSC must know *why* the commander wants support. He must also understand *how* the unit direct fire assets are to be used so he can supplement, not interfere with, their employment. The FSC must seek and understand the commander's guidance and intent and be prepared to recommend the integration of available fire support.

The commander's intent should prioritize fire support on the battlefield and identify critical tasks for fire support as well as for maneuver. His intent focuses fire support execution at the critical time and place. To ensure that fire support is properly integrated into the scheme of maneuver, the FSC must obtain answers to the questions on the following page. Most of the answers may be obtained from information presented at the mission brief or deduced from the commander's intent. Some answers may require clarification by the commander himself. Regardless, these answers should be confirmed as meeting the commander's intent for fire support during the staff estimate, wargaming, and rehearsal process.

Commander's Intent Considerations

OFFENSIVE OPERATIONS

- w What is the offensive mission?
- w What is the scheme of maneuver?
- w Are there any unique maneuver requirements for the batteries?
- w What is the zone of action?
- w What is the enemy situation?
- w What are the known/suspected enemy locations?
- w What units are to receive priority of fires?
- w What are the priority targets, and which units will be allocated a priority target?
- w When is priority shifted to the next target?
- w Where are special fires to be planned (smoke, illumination, FASCAM, etc.)?
- w Is there any requirement to adjust smoke or illumination targets?
- w Is there a requirement to register fire support assets?
- w How are lasers to be employed?
- w Which signals or events will be used to start special fires?
- w Which maneuver control measures have been established?
- w Are any restrictive fire support coordinating measures required?
- w What additional fire support assets have been allocated (attached or in support)?
- w Are there any peculiar communication requirements?
- w How will logistical support for mortars be accomplished?
- w Who will position mortars?
- w What are the future plans?
- w What is the chain of command?

DEFENSIVE OPERATIONS

- w What is the defensive mission?
- w What is the plan for the defense?
- w What is the sector of action?
- w What is the enemy situation?
- w What are the known/suspected enemy locations?
- w What are the priority targets?
- w Where are designated engagement areas?
- w Which are the most likely avenues of approach?
- w What and where are the obstacles, and how are they to be covered? (Coordinate with engineers.)
- w Have FPFs been allocated? Where are they to be planned? Are they to be adjusted?
- w What are the primary and alternate signals to fire the FPFs?
- w How are lasers to be employed?
- w Are recon/screening elements forward?
- w What special fires are to be planned (smoke, illumination, FASCAM, etc.)?
- w Are there special fire support requirements for the recon/screening elements?
- w Is there a requirement to adjust fire or register?
- w Which maneuver control measures have been established?
- w Are any restrictive fire support coordinating measures required?
- w What additional fire support assets have been allocated?
- w Are there any peculiar communications requirements?
- w Which signals will be used to start firing?
- w What are the future plans?
- w What is the chain of command?
- w How much time is available?
- w Which units are to receive priority of fires?
- w When is priority shifted to the next priority target?

METT-T: All levels of command continuously analyze information while considering factors of METT-T.

<u>FACTOR</u>	<u>CONSIDERATIONS</u>
Mission	<ul style="list-style-type: none"> w What is the mission? w What are the commander's concept of the operation and scheme of maneuver? w What is the commander's intent? w What is the object of the operation? w What route is the unit using? w What are the intermediate objectives? w What are the missions of the higher, lower, and adjacent units? w Are there any contingency missions?
Enemy	<ul style="list-style-type: none"> w What are the capabilities and limitations of enemy forces in the unit zone of action? w What are the likely courses of action? w Where are known, suspected, and likely enemy locations? w How does the enemy employ his forces?
Terrain and Weather	<ul style="list-style-type: none"> w Consider obstacles, avenues of approach, key terrain, observation, cover and concealment (OAKOC) w What are the obstacles (man-made, cultural, and natural) in sector? w Where are the avenues of approach? w Where is the key terrain? w What is observation like in sector? w Where are likely positions for ambushes, LPs, OPs, and killing zones? w What is the weather forecast, and how will it affect mobility and visibility? w How does terrain affect mobility, both friendly and enemy? w What munitions are best suited for the terrain and weather?
Troops Available	<ul style="list-style-type: none"> w Are appropriate fire support coordinating measures tied to terrain, when applicable? w What is the status of forward observer (FO) and fire support coordination center (FSCC) training, experience, personnel, and equipment? w What fire support assets are available, and what are their locations and capabilities? w What is the status of the supported unit?
Time Available	<ul style="list-style-type: none"> w What is the status of the observers in sector? w How long before the operation begins? w How much time is available to fire plan? w How long will it take to coordinate the fire plan? w How long is the operation expected to last?

Guidance From Higher Headquarters: Higher Headquarters will give the FSC information essential to the fire support plan. This information includes:

- w The commander's intent at that level.
- w Fire support assets available.
- w Fire support coordinating measures (FSCMs).
- w Target lists.
- w Schedules of fires.
- w Constraints on artillery Class V consumption, stated in terms of a controlled supply rate.
- w Technical advice on fire support matters.

Answer the following questions:

1. What are the three sets of vital information fire support planning must consider?
2. What five questions must the FSC get answered from the commander's intent for fire support?
3. When does the FSC consider the elements of METT-T?

Answers.

1. Commander's Intent/Scheme of Maneuver, METT-T, and Guidance from Higher Headquarters
2. When/Where/What/Why/How the commander wants fire support employed to support his scheme of maneuver
3. Continuously

Fire Planning

Plan the minimum targets necessary to support the scheme of maneuver. The targeting process, a critical component of the fire planning process, is based on the friendly scheme of maneuver. It requires close interaction among the commander, S2, S3, FSC, and various combat support agencies. It includes an assessment of the terrain and enemy and an identification of those enemy formations, equipment, facilities, and terrain which must be attacked to ensure success. It also involves anticipating the requirement for suppression of enemy air defense (SEAD) fires in support of close air support (CAS) assets.

Process: Fire planning begins with the commander's guidance and intent. It continues through the development of a prioritized list specifying what targets are to be attacked and when (decide), the acquisition of those high payoff targets (detect), and the determination of attack options to be used (fire support, maneuver, electronic warfare, or a combination) to defeat the target (deliver). It concludes with the assessment of the effects of the attack.

Offensive Fire Planning: For fire planning, offensive operations may be divided into four phases: short of the line of departure (LD) or line of contact (LC), from the LD/LC to the objective, on the objective, and beyond the objective.

Defensive Fire Planning: In the defense, the FSC should consider planning fires in front of, on, and behind the position.

Analysis: After the FSC has collected the targets available to him, he must analyze them to determine which ones will be included in the fire plan. Having too many targets is as bad as having too few targets to support the scheme of maneuver. It is imperative that the FSC be able to reference targets quickly. The target list will be reduced by:

- w Resolving duplication of targets.

- w Removing targets that do not fit the commander's intent or support the scheme of maneuver.

OFFENSIVE FIRE PLANNING

<u>PHASE</u>	<u>ACTIONS TO BE TAKEN</u>
Short of the LD or LC	<p>Consider planning fires:</p> <ul style="list-style-type: none"> w To support the unit movement to the LD or LC. w To support the unit if the attack fails and the enemy counterattacks. w To impede enemy patrols and early warning systems.
From the LC or LD to the Objective	<p>Provide priority of fires to lead elements.</p> <p>Consider planning:</p> <ul style="list-style-type: none"> w Fires to suppress enemy direct fire weapons. w Smoke to restrict enemy observation of friendly maneuver elements. w Smoke to screen friendly obstacle breaching operations. w Fires on exposed flanks. <p>Consider placing an FO in an overwatch position.</p> <p>Consider recommending preparation fire if the advantages outweigh the disadvantages:</p> <ul style="list-style-type: none"> w Will the enemy be forewarned of an attack? w Will the loss of surprise significantly affect the chance for success? w Are there enough significant targets to justify a preparation? w Is there enough fire support ammunition to fire an effective preparation? w Can the enemy recover before the effects can be exploited? <p>Determine when and how you will shift fires. Use one of the following methods:</p> <ul style="list-style-type: none"> w Time--at a predetermined time, fires will shift. w Location--fires shift when the maneuver unit reaches a certain location, such as a phase line. w On call--the maneuver commander directs when the fires shift. w Event--a predetermined event signals shifting of fires. <p>NOTE: Whatever method is used, all concerned must know what method is being used.</p>
On the Objective	<p>Consider planning:</p> <ul style="list-style-type: none"> w Fires to block enemy reinforcement and supply by ground or air. w Fires to suppress enemy direct fire weapons. w Obscurants to screen friendly forces or obscure hostile ground observation when consolidating on the objective with smoke or WP. w Signals for lifting/shifting fires. w Fires as you would for the defense when consolidation on the objective takes place.
Beyond the Objective	<p>Consider planning fires:</p> <ul style="list-style-type: none"> w To impede enemy reinforcements. w To block avenues of approach for counterattacking enemy forces. w To slow or block enemy retreat.

DEFENSIVE FIRE PLANNING

<u>FOCUS</u>	<u>ACTIONS TO BE TAKEN</u>												
In Front of the Position	<p>On avenues of approach:</p> <ul style="list-style-type: none"> w Target enemy avenues of approach/choke points. w If lasers are available, position them to cover avenues of approach where high value targets will appear. w If available, plan FASCAM to slow the enemy. w Integrate fire support with direct fire weapons. w Plan trigger points for possible moving targets. <p>On key terrain:</p> <ul style="list-style-type: none"> w Place an FO with a laser on terrain where he can provide early warning, target location, laser designation, and overwatch of the battlefield. w Plan to obscure enemy observation of friendly movements. <p>On obstacles:</p> <ul style="list-style-type: none"> w Coordinate coverage of obstacles with engineers. w Plan fires behind, in front of, and adjacent to obstacles to hinder enemy breaching operations. w Consider the use of smoke or riot control agents to hinder enemy breaching operations. w If available, and in conjunction with the engineer, plan FASCAM to reseed minefields that the enemy has breached. w Plan fires to close gaps and lanes in barrier or obstacle plans. w Plan fires to help canalize the enemy. w Integrate fire support with obstacles to complement direct fire weapons. w Accurately locate obstacles and preplanned targets. 												
On the Position	<p>Consider:</p> <ul style="list-style-type: none"> w Using groups or series to assist in withdrawal. w Using smoke to facilitate disengagement. w Planning fires on top of your battle position to help in the disengagement, to deny the enemy access to the position, and to support a counterattack. <p>Plan FPFs. Use the following sequence in planning FPFs; but remember that the maneuver commander selects FPF locations.</p> <ul style="list-style-type: none"> w Select the fire support asset to fire the FPF. w Adjust fire onto the FPF to determine actual firing data to be used in firing the FPF. (The tactical situation, time, or ammunition may not allow the FPF to be adjusted.) w Determine the FPF time of flight (TOF). w Select the FPF trigger point. Consider TOF and the estimated enemy rate of advance. w Integrate the FPF into the final protective lines of the company direct fire weapons. w Determine how the FPF call for fire will be initiated. <p>NOTE: The length of the FPF is the number of elements (tubes) multiplied by the projectile bursting diameter. The sizes of the FPFs for given systems are shown below.</p> <table border="0" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><u>SYSTEM</u></th> <th style="text-align: left;"><u>ELEMENTS</u></th> <th style="text-align: left;"><u>SIZE OF FPF</u></th> </tr> </thead> <tbody> <tr> <td>60mm mortar</td> <td>3 tubes</td> <td>110m x 35m</td> </tr> <tr> <td>81mm mortar</td> <td>8 tubes</td> <td>280m x 35m</td> </tr> <tr> <td>155mm howitzer</td> <td>6 guns</td> <td>300m x 50m</td> </tr> </tbody> </table>	<u>SYSTEM</u>	<u>ELEMENTS</u>	<u>SIZE OF FPF</u>	60mm mortar	3 tubes	110m x 35m	81mm mortar	8 tubes	280m x 35m	155mm howitzer	6 guns	300m x 50m
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155mm howitzer	6 guns	300m x 50m											
Behind the Position	<p>Consider planning fires:</p> <ul style="list-style-type: none"> w To support alternate battle positions. w To support a counterattack. w To delay the enemy as the company withdraws. w To prevent reinforcement by the enemy. 												

Answer the following questions.

1. The fire planning process can be broken into three phases. Each phase begins with the letter "D." What are they?

2. What are the four phases offensive fire planning can be broken into?

3. What are the three phases defensive fire planning can be broken into?

Answers.

1. Decide, Detect, and Deliver.
2. Short of the LD/LC, from the LD/LC to the objective, on the objective, and beyond the objective.
3. In front of, on, and behind the position.

Fire Support Coordination Center (FSCC) Organization and Information Required

NOTE: This section discusses only the battalion FSCC. For more on regimental, division, MAGTF, and landing force FSCCs, see FMFM 6-18, Chapter 2. For specific duties, refer also to Chapter 2.

FSCCs in the GCE. All echelons of the GCE, from division to battalion, will establish an FSCC as an advisory and coordination agency. The FSCC is the agency where supported units plan and coordinate fire support. The FSCC is located with the combat operations center (COC). Facilities, equipment, and material are provided by the headquarters to which the FSCC belongs. Supporting arms units provide representatives and equipment necessary for conducting coordination, targeting, and communication functions for their respective arms. Detailed listings of personnel by grade, MOS, and billet description are found on unit T/Os. The senior FSCC in the GCE is designated as the GCE FSCC and is collocated with the direct air support coordination (DASC) agency or a liaison team thereof. If collocation with the DASC agency is not possible, reliable communications between the GCE FSCC and the DASC agency are a must.

Infantry Battalion FSCC. Most fire support coordination in operations is performed in battalion FSCCs. All fire support requests originating in the battalion are monitored/received in the FSCC. These requests are checked to ensure that the supporting arms are integrated with the scheme of maneuver and that friendly forces are not needlessly endangered. Clearances for observers to attack targets outside the battalion's zone of action are usually coordinated by the battalion FSCC. Fire support planning efforts by battalion FSCC are relatively limited in comparison to the detailed and extensive planning of higher headquarters. The organization of the battalion FSCC consists of the following:

Fire Support Coordinator (FSC). The weapons company commander of the infantry battalion is the FSC.

Liaison Section. The liaison section organic to a firing battery of the supporting artillery battalion has four officers, one observer liaison chief, four scout observers, and nine field radio operators. The senior officer is the artillery liaison officer in the battalion FSCC. The remaining three officers are forward observers (FOs) and each heads an FO team to support a company. The FO team consists of the FO, one scout observer, and two field radio operators. When required, an FO team may be divided into two elements, each capable of independent operations for a limited period. The FO teams call for and adjust artillery fires.

Tactical Air Control Party (TACP). The organic battalion TACP consists of three air officers (AirOs) and twelve field radio operators. The senior AirO acts in a dual capacity as a special staff officer to the battalion commander with regard to all aviation matters and as OIC of the battalion TACP. In the latter capability, he works within the FSCC as the air officer. Each of the other two aviators is the leader of a forward air control (FAC) party with four communicators each. The FAC parties do a majority of the preplanned and immediate requests for close air support (CAS).

Shore Fire Control Party (SFCP). The battalion SFCP from the HQ battery of the supporting artillery battalion includes a battalion naval gunfire (NGF) liaison team and an NGF spot team. The liaison team performs coordination functions in the FSCC. The liaison team consists of one NGLO, one NGF chief, and five field radio operators. The spot team is usually employed with a company of the battalion. However, the spot team may be divided into two elements, each capable of independent operations for a limited period of time. Spot teams call for and adjust NGF. The spot team consists of one NGF spotter (USMC Lt), two SFCP men, and two field radio operators.

Mortar Section. The 81mm mortar platoon organic to the weapons company provides a mortar liaison party to work in the FSCC and four FO teams to support the companies or man observation posts. The mortar liaison party consists of a mortar representative, two field radio operators, and one wireman. An FO team consists of the FO, two field radio operators, and a wireman.

Separate Battalion FSCC. Separate battalions operating as maneuver elements (LAR and tanks) establish an FSCC. This FSCC will function in the same manner as an equivalent level infantry unit FSCC. The FSCC will be staffed with the necessary personnel to provide necessary fire support experience (artillery, NGF, mortar, air, and other representatives). These people are organic to the separate battalion or are provided by the artillery regiment and division. The FSC will be designated by the separate battalion commander.

Company Fire Support Coordination. A company does not have an FSCC as such. The company commander, assisted by the artillery FO, 81mm FO, and if assigned, a FAC and NGF spot team, performs the fire support coordination at the company level. By practicing sound procedures and teamwork, these personnel can remain dispersed and, at the same time, function in a mutually supportive and coordinated manner.

If no adjacent units are affected, the coordination required for fire support is usually best accomplished by the company commanders and the supporting arms representatives assigned to their units. At such times, battalion FSCCs have no need to intervene unless fire support has to be diverted to a higher priority mission. In this case, the battalion FSCC should seek additional support. Artillery batteries and NGF ships can handle simultaneous missions. FSCs should not intervene to cancel requests for higher priority missions unless the artillery fire direction center or ships report they cannot handle any more missions. Simultaneous missions should not be approved if fire support effectiveness will be degraded.

FSCC Arrangement. Because the functions of battalion, regimental, and division FSCCs differ, the internal organization of each is different. The internal organization should allow for rapid coordination and exchange of information between the FSCC personnel and the other staff sections. The physical location of the FSCC is within the combat operations center (COC) of the command post (CP). Its configuration may vary with the mode of operation and tactical situation. In some instances, the organization of the FSCC is dictated by the availability of space. The following considerations apply to the physical arrangement of an FSCC regardless of echelon:

- w The FSCC must be close enough to the G/S-3 and G/S-2 for easy information exchange. Map boards should be positioned to facilitate sharing of information.
- w FSCC personnel need rapid access to all fire support nets.
- w FSCC watch officers and SNCOs need to be able to closely supervise radio operators on fire support nets.
- w Radio operators on fire support nets need to be close to each other to facilitate coordination.
- w Fire support nets should be separated from the supported commander's tactical and command radio nets. Both types of nets are extremely busy and adjacent location can add to confusion and potential error.
- w Visitors must be restricted. VIPs can be briefed in a separate facility.
- w The FSCC should position himself to facilitate internal supervision of the FSCC concurrent with coordination with the G/S-2 and G/S-3.
- w A flow of message traffic should be established to allow for rapid exchange of pertinent information to appropriate members of the FSCC and to other sections of the COC. An FSCC journal should be maintained to record important events and incidents affecting operation. Incoming and outgoing messages should be chronologically filed after appropriate routing. The journal facilitates update of oncoming watchstanders.

<u>CATEGORY OF INFORMATION</u>	<u>BATTALION FSCC</u>
Location of Friendly Units	<ul style="list-style-type: none"> w All organic and attached companies. w Any small units or patrols in the battalion's zone or sector not located with the parent company.
Disposition of Supporting Arms Units	<ul style="list-style-type: none"> w Location of all sections of 81mm platoon. w Location of any artillery battery in the battalion's zone or sector. w Firing capabilities of all DS and reinforcing artillery which can range that battalion's zone or sector. w Location of NGF ships in DS of the battalion or GS of the regiment or division which can range the battalion's zone or sector. w Times, routes, and destinations of all artillery batteries conducting displacements in that battalion's zone or sector.
Status of Aviation	<ul style="list-style-type: none"> w Status of assigned aircraft for air requests (preplanned and immediate; fixed-wing and helicopter). w Information pertaining to friendly and enemy air defense.
Plans of Unit	<ul style="list-style-type: none"> w Scheme of maneuver. w Designation of main and supporting attacks. w Any special plans which require plans of supporting fires.
Ammunition Situation	<ul style="list-style-type: none"> w Accurate and current count of 81mm ammunition. w Shortages of any type of ammunition which will affect fire support planning. w Forecast of when the DS ships will leave the fire support station to resupply ammunition.
Fire Support Coordination	<ul style="list-style-type: none"> w FSCMs planned and in effect. w Updates to targets.

Answer the following questions.

1. What is the purpose of the FSCC?

2. In the BN FSCC, who

_____w coordinates all fire support so it meets the commander's intent and scheme of maneuver?

_____w is the artillery expert? _____

_____w coordinates the planning of air for the battalion? _____

_____w controls CAS for the companies? _____

_____w is the senior member of the SFCP? _____

3. What is the most important factor for planning the internal organization and arrangement of the FSCC?

Answers.

1. The FSCC facilitates the supported unit's planning and coordination of fire support.
2. FSC
artillery liaison officer
AirO
FAC
NGLO
3. The most important factor is to allow for rapid coordination and exchange of information.

MARINE CORPS FIRE SUPPORT SYSTEM (MCFSS)

The Marine Corps Fire Support System (MCFSS) automates fire support command and control functions by using digital devices and data communications to collect, process, and distribute information quickly and accurately. It incorporates systems already employed by the Marine Corps and employs their full data communications capability. These systems include the Battery Computer System (BCS), the Meteorological Data System (MDS), and the Firefinder Countermortar Radar (CMR). MCFSS also uses some new, off-the-shelf technology and U.S. Army systems such as the Initial Fire Support Automation System (IFSAS), which is Army Tactical Fire Direction (TACFIRE) System software ported to a Lightweight Computer Unit (LCU).

System Description

MCFSS is an interim system for which the objective system is the Advanced Field Artillery Tactical Data System (AFATDS). The MCFSS is built around the following systems:

- The AN/GYG-1(V) Battlefield Computer Terminal with Light TACFIRE software for artillery fire direction centers (FDCs) at battalion and regimental level.
- The AN/GYK-37 Lightweight Computer Unit, with IFSAS software, at force fires coordination centers (FFCCs), fire support coordination centers (FSCCs), and other nodes.
- The AN/GYK-37 Lightweight Computer Unit with BCS software at the battery FDC.
- The AN/TPQ-36 (Q-36) Firefinder Countermortar Radar at the artillery regiment.
- The AN/TMQ-31 Meteorological Data System (MDS) with artillery meteorological teams.
- The AN/PSC-2A Digital Message System (DMS) with artillery forward observers

Capabilities

MCFSS significantly increases the efficiency of fire support available to maneuver commanders. It increases communications, speed and accuracy without affecting command relationships or the doctrine, tactics, techniques, and procedures for fire support. MCFSS is made up of computers and related components which automate some command and control functions of fire support. These computers automate not only tactical and technical fire direction, but can process and disseminate –

- Conventional fire plans
- Target information
- Fire support coordination measures (FSCMs) and other battlefield geometry such as forward line of troops (FLOT) and unit zones.
- Firing unit and ammunition information
- Meteorological and survey information
- Fire missions generated by incoming target intelligence.

MCFSS Principles

- a. MCFSS is a system.** The MCFSS comprises many different computers and other devices. If the system is to operate smoothly and support the maneuver commander's operation, all devices in the system must operate on an integrated operating setup and communications scheme. If all elements of the system are not integrated, the *system will not work*. The basis for the integration of MCFSS is the FMFM 6-18-1 and the unit's standing operating procedure (SOP).

- b. MCFSS does not replace the need for manual/voice backup.** Due to the complexity of MCFSS, the entire system will not be working at all times. MCFSS is dependent on solid communications which will not always be possible due to distances and interference. In these circumstances the unit must have manual backups in place to be able to accomplish the mission.
- c. MCFSS has an Achilles Heel –communications.** The most practiced procedures and the best running automated computers in world will not allow MCFSS to work if they cannot communicate. The communications problem is twofold. First, communications parameters in all devices must be in agreement if they are to communicate. Settings at different devices on a net cannot be changed without notification of, and agreement from the net control station (NCS). Second, time and attention must be paid to communications equipment used for data transmission.
- d. MCFSS sustainment training must be a priority.** MCFSS uses computers that are designed to be user friendly *but* they require constant operator training. The skills needed to operate the computers are *very perishable* and require continuous practice in order for an operator to maintain his proficiency. A unit's ability to integrate all elements of MCFSS is equally perishable. The Individual Training Standards (ITSs) should be used for the basis for operator and supervisor sustainment training. Unit sustainment training should be based on the FM FM 6-18-1 , and the unit's MCFSS SOP.
- e. MCFSS is only a tool to be used to accomplish the mission.** If a task can be done faster and easier by manual methods, do not force MCFSS to work at the expense of the timely execution of your unit's mission. During excerices, this must be balanced with the requirement for sustainment training.

Interoperability

MCFSS is interoperable with the following systems:

- Army TACFIRE, Light TACFIRE, and IFSAS.
- Multiple Launch Rocket System (MLRS) Fire Direction Systems (FDS).
- AFATDS.
- Army Ground Stations Module (AGSM). The AGSM is a computer that receives combat intelligence from the Air Force joint surveillance, target attack radar system (JSTARS) aircraft.
- Lightweight Ground Station Module (LGSM). The LGSM is the vehicle mounted variant of the AGSM.
- Airborne Target Handover System (ATHS). The ATHS is found in Army OH-58D aircraft.
- Artillery automated data processing (ADP) systems of other nations under NATO standard Agreement (STANAG) 5620.

Naming Conventions

MCFSS utilizes naming conventions for the naming of geometry, unit names and fire plans to ensure understanding and lack of duplication. The naming of geometry deals predominantly with fire support coordination measures, unit names to identify a specific unit and its geometry, fire plans etc.... in MCFSS. Fire plans are named to identify which unit has planned those fires inputted into MCFSS. The following pages contain Appendices A, B and C from the FMFM 6-18-1 and explain these naming conventions. When reading these appendices remember that they overlap and apply to each other ex. To determine how to label a restricted fire line (RFL) that 1st Battalion 6th Marines desires to input, you consult Appendix A and see that RL designates an RFL and the number designating which RFL it is, 1st, 2d, 3d, etc... follows after the RL stipulating which RFL you have created; in this case it will be RL1 because this is the first RL created by 1st Battalion 6th Marines. Now, consult Appendix B to determine the unit naming convention and you determine that 1A6 represents 1st Battalion 6th Marines. Therefore, the proper way to name the 1st RFL employed by 1st Battalion 6th Marines is RF11A6.

Appendix A

Naming of Geometry

1. Support files are used by all stations in MCFSS. Because of their universal nature, a naming convention must be established to ensure understanding and lack of duplication.
2. Geometry names use not more than six characters. These six characters are split to provide the following three pieces of information:

- a. The first two characters designate the type of geometry:

AC=Airspace coordination area (**ACA**)

CH=Chemical hazard area

CL=Coordinated fire line(**CFL**)

DA=Damage assessment area

DS=Dead space area(**DSA**)

FF=Free fire area

FL=Forward Line of troops(**FLOT**)

FS=Fire support coordination line(**FSCL**)

NF=No fire area

OB=Objective area

RF=Restrictive fire area(**RFA**)

RL=Restricted fire line(**RFL**)

TV=Target value area(**TVA**)

ZO=Zone

- b. The third character is a numerical sequencing of the geometry input. For example, the first **RFA** established by an agency is number **1**. Number **1** may be updated or completely deleted and replaced with number **2**.
- c. The fourth, fifth, and sixth characters are the tag name of the unit that established the geometry (see appendix B).
- d. Examples:

ZO12MD= The first **ZONE** established by 2d Marine Division.

FL27MR=The second **FLOT** established by 7th Marines.

DS4E11=The fourth **DSA** established by Battery E, 11th Maines.

RF21A8=The second **RFA** established by 1st Battalion, 8th Marines.

Appendix B

Unit Tag Names

1. Tag names are three-character abbreviations used to identify units in message data fields with limited space. Tag names are used in the **FSCOORD** fields of support messages as well as in the naming of fire plans and geometry.

2. The following rules apply:

- a. Regimental and larger size units are identified by the numerical designation followed by two characters identifying the unit size. The following unit size designators are used:

MF=MEF

FF=MEF forward

U=MEU

MD=Marine division

MR=Marine regiment

- b. Regiments with two digit designation (i.e. 23d Marines) use the number followed by **M**. For example, 23d Marines is **23M**.

- c. Battalions use their abbreviated battalion name (e.g., 1/5) with the letter **A** replacing the virgil (/). For example, 1st Battalion, 5th Marines is **1A5**.

- d. Battalions of regiments numbered higher than 9 use the entire abbreviated battalion name (e.g., 1/25) omitting the virgil (/). For example, 1st Battalion, 24th Marines is **124**.

- e. Separate battalions use the battalion number followed by two letters from the following list identifying the battalion. For example, 1st Tank Battalion is **1TK**.

AA=assault amphibian battalion

CE=combat engineer battalion

LA=light armored reconnaissance battalion

TK=tank battalion

- f. Artillery firing batteries use battery letter followed by the regiment number. For example, Battery D, 10th Marines is **D10**.

- g. Forward observers use the letters **FO** followed by the letter of the supported infantry company. For example, the FO for Company C, 1st Battalion, 6th Marines is **FOC**.

- h. The TPC uses the letter **T** followed by the artillery regiment's number. For example, 11th Marines' TPC is **T11**.

Appendix C

Naming Fire Plans

1. Fire plans are named using six characters and the following convention.

2. The first two letters indicate the type of plan:

CA=countermechanized (armor) program

CF=counterfire program

FA=FASCAM

GP=group

MO=countermobility program

OC=on-call plan

PP=preparation fire

QK=quick fire plan

SA=suppression of enemy air defense plan

SE=series

TB=target bulletin

3. The third character is a numerical sequencing of the fire plans as they are entered. For example, the first preparation fire established by an agency is **PP1**.

4. The fourth, fifth, and sixth characters are the tag name of the unit that established the geometry (see appendix B).

5. Examples:

SE21A6=The second series established by 1st Battalion, 6th Marines.

CF1T10=The first counterfire program established by 10th Marines TPC.

PP12MD=The first preparation fire established by 2d Marine Division.

Answer the following questions:

1. What is the Marine Corps Fire Support System (MCFSS)?

2. What are the MCFSS principles?

3. How do you label:

- The first series planned for 3d Battalion, 8th Marines
- The 2d restricted fire area for a scout sniper team from 1st Battalion, 5th Marines
- A FASCAM minefield planned by 6th Marines

Answers

1. An automated fire support system
2. MCFSS is a system

MCFSS does not replace the need for manual/voice backup
MCFSS has an Achilles Heel – communications
MCFSS sustained training must be a priority
MCFSS is only a tool to be used to accomplish the mission

3. SE13A8
RF21A5
FA16MR

Fire Planning Tools and Techniques

Target Numbering System: The target number consists of six characters: two letters and four numbers. The two-letter group may be used to indicate the originator of the target number and/or the level holding the target data.

First Letter: The first letter of the two-letter group will be for national identification at the corps or MAGTF level. The first letter will be assigned and published by the MAGTF or the headquarters senior to the MAGTF when the MAGTF is assigned as a subordinate command in joint or combined operations. The national identifying letters for NATO, American, British, Canadian, and Australian armies are as follows:

<u>NATION</u>	<u>1st Letter</u>
Australia	V
Belgium	B
Canada	C, Z
Denmark	D
France	F
Greece	E
Germany	G
Italy	R
Luxembourg	L
Netherlands	H
Norway	N
Portugal	P
Spain	S
Turkey	T
United Kingdom	U, X, J
United States	A, K, Y, W

Second Letter: The second letter will designate units within the MAGTF.

1st Marine Regiment	AA	9th Marine Regiment	AJ
2d Marine Regiment	AB	10th Marine Regiment	AK
3d Marine Regiment	AC	11th Marine Regiment	AL
4th Marine Regiment	AD	12th Marine Regiment	AM
5th Marine Regiment	AE	14th Marine Regiment	AP
6th Marine Regiment	AF	23d Marine Regiment	AT
7th Marine Regiment	AG	24th Marine Regiment	AU
8th Marine Regiment	AH	25th Marine Regiment	AV

Regimental Number Designations:

Regimental FSCC	0001 - 0999
1st Battalion	1000 - 1999
2d Battalion	2000 - 2999
3d Battalion	3000 - 3999
4th Battalion	4000 - 4999
Attached Battalion	5000 - 5999
Attached Battalion	6000 - 6999
DS Artillery Battalion	7000 - 7999
Counter Battery Radar (CBR)/Chem/Nuc	8000 - 8999

Division targets will be numbered using the division artillery regiment's letter designation and numbers: 0001 - 0999. The artillery regiment and GS battalions will use the artillery regiment's letters and numbers 7000 - 7999. Separate battalions within the division will number targets using the artillery regiment's letters and numbers as indicated:

Tank Battalion	1000 - 1999
LAR	2000 - 2999
Combat Engineer Battalion	3000 - 3999

Subassignment of Blocks of Numbers within an Infantry Battalion:

Artillery Liaison Officer	000 - 199
FO, 1st Company	200 - 299
FO, 2d Company	300 - 399
FO, 3d Company	400 - 499
Additional FOs	500 - 699
81mm Mortar Platoon	700 - 799
As required	800 - 999

Answer the following questions.

To whom do the following target numbers correspond?

AE0871 _____

AH3323 _____

AC1143 _____

AA7423 _____

AL8124 _____

AK1056 _____

AL3071 _____

AB2424 _____

AG1165 _____

AF3456 _____

Answers:

AE0871 5th Marines Regt FSCC

AH3323 FO, Co K, 3d Bn, 8th Marines

AC1143 ALO, 1st Bn, 3d Marines

AA7423 DS Artillery Bn supporting 1st Marines

AL8124 Counter Battery Radar (CBR-Q36), 11th Marines

AK1056 2d Tank Bn, 2d MarDiv

AL3071 1st CEB, 1st MarDiv

AB2424 FO, Co G, 2d Bn, 2d Marines

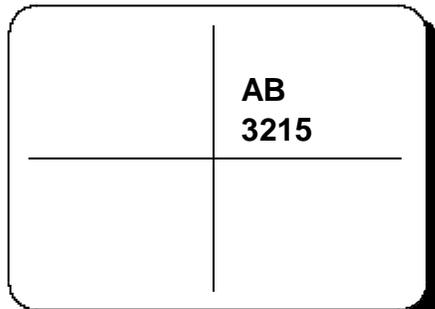
AG1165 ALO, 1st Bn, 7th Marines

AF3456 FO, Co L, 3d Bn, 6th Marines

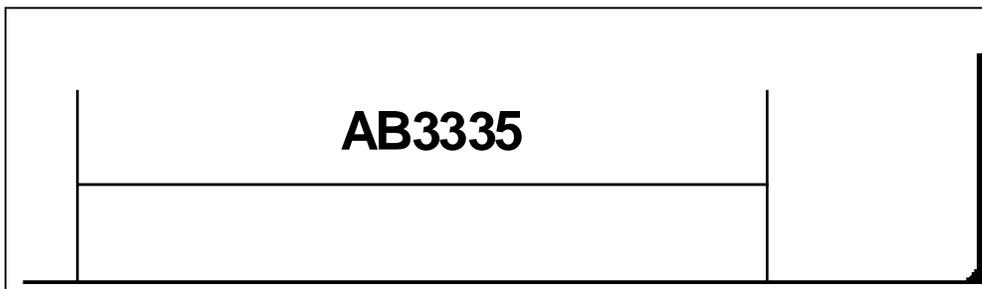
Target Symbols

The basic symbol used in fire planning is the target. Targets relate to personnel, material, or pieces of terrain that are designated and numbered for reference and/or firing. If you plan a target, it doesn't mean you have to shoot it. It can be used to shift from the target as a known point, which is most expeditious for an FO in a highly mobile environment.

The fundamental symbol used for a point target is a cross (tick mark). The point target symbol is used for targets that are less than or equal to 200 meters in length and width. It is drawn and labeled in black. The location of this target is normally given by a six-digit grid coordinate. It is identified by a six-digit alpha-numeric number in the upper right quadrant.



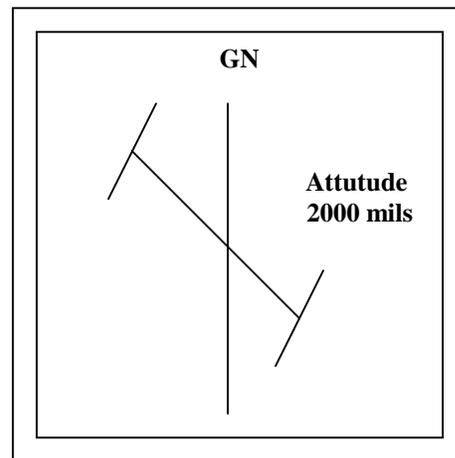
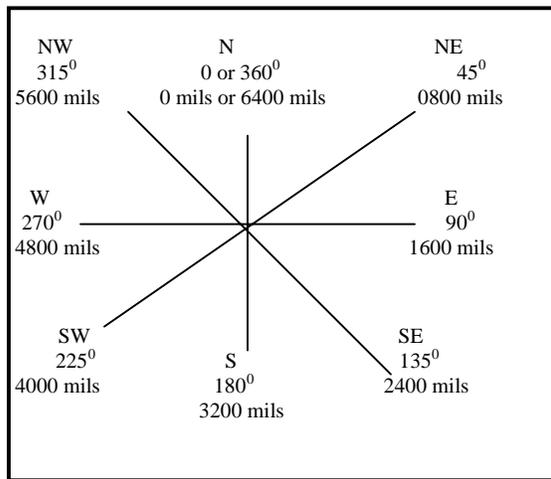
For targets greater than 200m, but less than 600m, in length, a linear target symbol is used. A linear target is labeled above the target symbol and is drawn and labeled in black. The location of this target is identified by two six-digit grid coordinates of the end points or by identifying the center grid, attitude, and length.



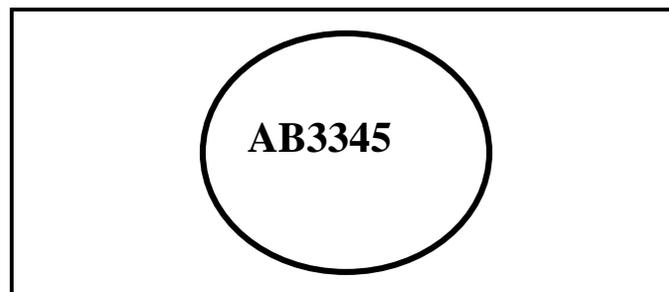
The rectangular target is used for targets with lengths and widths greater than 200m. The target is drawn and labeled in black with the target number in the center of the target. There are two methods of identifying the location of rectangular targets: by six-digit grid coordinates of all corners or by the center grid, an attitude of the long axis, the length, and width.



The attitude of rectangular and linear targets is determined by measuring the angle of the long axis of the target from grid north (GN). The figure is then expressed to the nearest 100 mils. An attitude will always be between 0-3199 mils. $1^\circ = 17.777778$ mils.

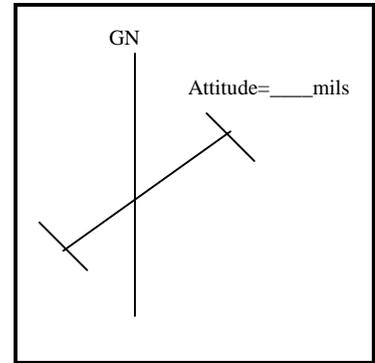
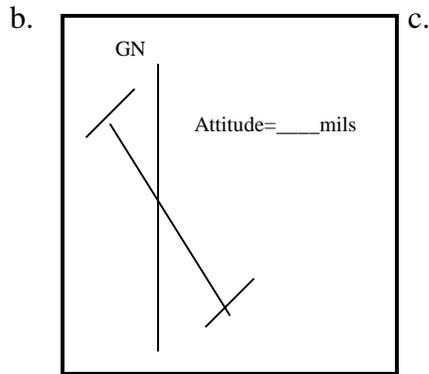
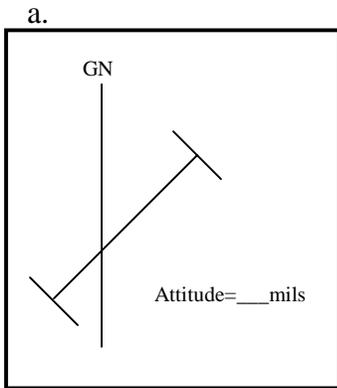


Another type of target which covers an area that is greater than 200m is planned for by the use of a circular target. The target is drawn and labeled in black with the target number in the center of the target. A circular target is located by a six-digit grid and radius.



Answer the following questions.

1. A _____ target symbol is used for targets with lengths greater than 200m.
2. A _____ target symbol is identified by a six-digit grid center point and a radius.
3. A _____ target symbol is used for targets that are less than or equal to 200m in length and width.
4. What is the approximate attitude of the following linear targets?



Answers.

1. Linear
2. Circular
3. Point
4. a. 800 mils b. 2900 mils c. 1400 mils

Target Definitions

Target of Opportunity: Targets of opportunity are targets that appear during combat and against which no attack has been prearranged.

Planned Target: A planned target is one on which fire has been prearranged. The degree of prearrangement varies, but some prior coordination or action has been done to facilitate its engagement. Planned targets are further divided into scheduled, on-call, and priority targets.

Scheduled Target: A scheduled target is a planned target that will be attacked at a specific time. This time may be related to an H-Hour or to another time preference.

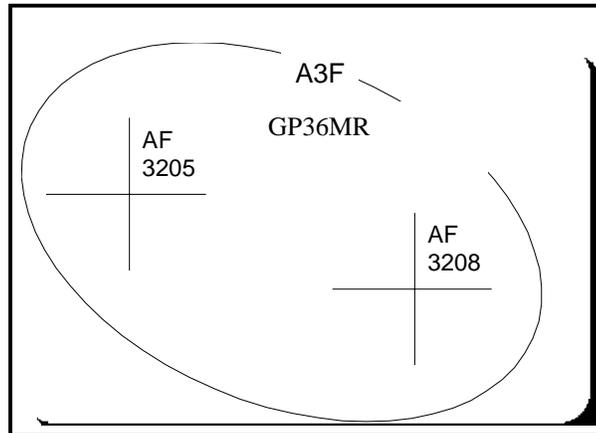
On-Call Target: An on-call target is a planned target which has not been scheduled for an attack at a specific time but which may be attacked when requested. The on-call target requires less reaction time than a target of opportunity.

Priority Target: A priority target is a target the attack of which, when requested, takes priority over all other requests except FPFs (see below). Priority targets are designated by the maneuver commander. He also gives specific guidance as to when the targets will become priority, the munitions to use, the accuracy required, and the desired effects.

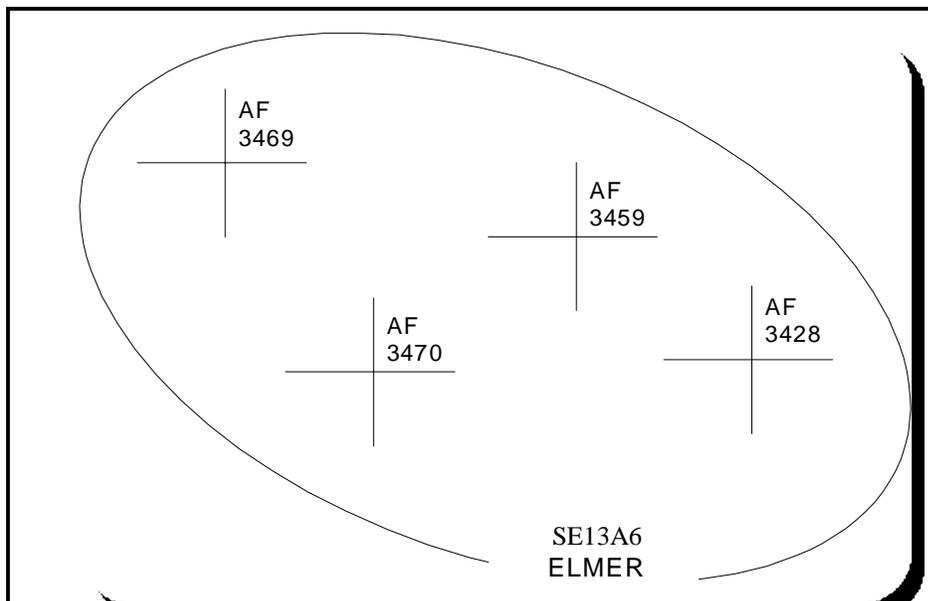
Final Protective Fire (FPF): FPFs are a special type of priority target. They are designed to create a barrier of steel that keeps the enemy from moving across defensive lines. They are planned to cover the most likely dismounted avenue of approach and are tied in with direct fire systems.

There will be times when a commander may request to have multiple targets engaged. There are techniques that the FSC can use to support the commander's desires. The FSC requests groups and/or series through fire planning channels. They are not finalized until the direct support artillery battalion plans the groups and/or series. Once the artillery battalion determines that they will be able to fire the groups and/or series, the FSC will be notified of the names for the groups and/or series.

Group: A group is the firing of two or more targets simultaneously. A group name is designated by using the letters of the requesting agency's target block separated by the number of the group, or in accordance with the MCFSS naming conventions if utilizing MCFSS. For example: A3F is the 3d group established by 6th Marines.



Series: A series is the firing of several targets in a specific order according to a specific time sequence to support a maneuver phase. There is no specific rule for naming a series, unless utilizing MCFSS. As a general rule, series names follow a theme (names, makes of cars, colors, etc.), if utilizing MCFSS then name in accordance with MCFSS naming conventions. For example: Series Ralph and Series Elmer.



In either case, the planning of a group or series does not preclude the attack of individual targets within either a group or series. Additionally, the FSC must receive confirmation that the group or series has been scheduled and designated before requesting it be fired.

Preparation: A preparation is an intense volume of fire delivered in accordance with a specific time schedule (H-hour) to support an attack.

Counterpreparation: A counterpreparation is an intense prearranged volume of fire delivered when an enemy attack is discovered. It is designed to break-up the attack formations and control.

Program: A program is a predetermined sequential attack of targets of a similar nature.

Answer the following questions.

1. A _____ target is one in which fires have been prearranged.
2. A _____ target is a _____ target that is fired in accordance with a time sequence.
3. A _____ of targets consist of two or more targets to be engaged simultaneously.
4. A _____ is two or more targets engaged in a specific sequence or order.

Answers.

1. Planned
2. Scheduled, Planned
3. Group
4. Series

Fire Support Coordinating Measures (FSCMs)

FSCMs are designed to provide safeguards for friendly forces and at the same time facilitate rapid engagement of targets. With the exception of boundaries, FSCMs fall into two broad categories: permissive and restrictive. With the establishment of a permissive measure, no further coordination is required for the engagement of targets affected by the measure. The primary purpose of permissive measures is to facilitate the attack of targets. The establishment of a restrictive measure imposes certain requirements for specific coordination prior to the engagement of those targets affected by the measure. The primary purpose of restrictive measures is to provide safeguards for friendly forces.

Answer the following questions.

1. FSCMs which primarily facilitate rapid engagement of targets are classified as _____ measures.

2. FSCMs that primarily provide safeguards for friendly forces are classified as _____ measures.

Answers.

1. Permissive
 2. Restrictive
-

All FSCMs are established by the MAGTF commander. The FSC is responsible for recommending the establishment of all FSCMs, with the exception of boundaries. Recommendations are based on the maneuver commander's guidance, location of friendly forces, scheme of maneuver, and anticipated enemy actions. Once established, FSCMs are displayed on maps, firing charts, and overlays. Graphical portrayal will include at a minimum: (all in black) abbreviation of the FSCM, establishing headquarters, and the effective date-time-group (DTG). Often the DTG will be indicated as a "from-to" time.

Answer the following questions.

1. The _____ establishes all coordinating measures.
2. The _____ recommends the establishment of FSCMs with the exception of boundaries.
3. When graphically portrayed on maps, firing charts, and overlays, the FSCMs will be displayed with the following information: _____, _____, and _____.

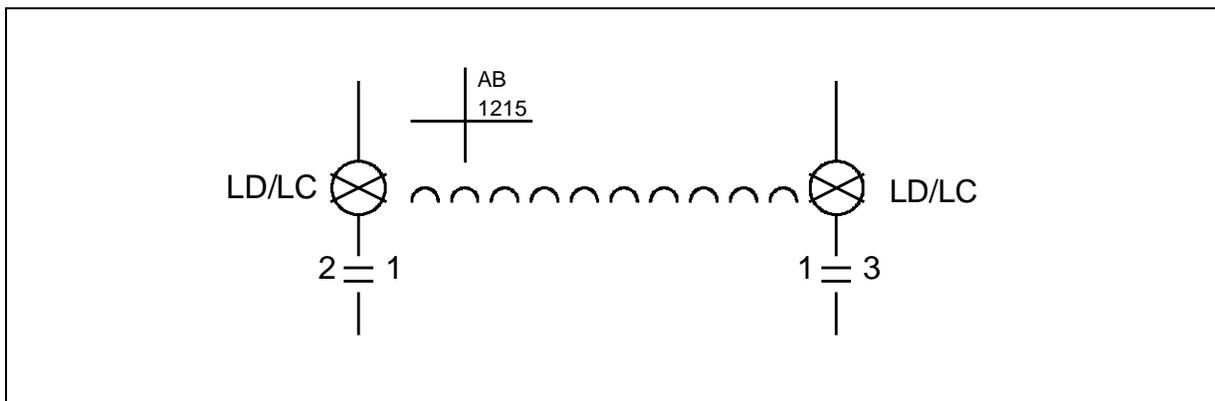
Answers.

1. MAGTF Commander
2. FSC
3. FSCM abbreviation, establishing headquarters, and effective DTG

Boundaries are used by the maneuver commander in both the offense and defense to designate the geographical area for which a particular unit is responsible. They describe the zone of action or sector of a maneuver unit. Boundaries are usually assigned along terrain features easily recognizable on the ground and are so situated that key terrain features and avenues of approach are completely included in the area assigned to a unit. Boundaries also serve as the basic FSCM. As such, they are both permissive and restrictive in nature. They are restrictive in that no fire support should be delivered across a boundary unless the fires are coordinated with the force having responsibility within the boundary. Fires delivered within close proximity to boundaries also should be coordinated with the adjacent unit. Boundaries are permissive in that within his own boundaries, the maneuver commander enjoys complete freedom of fire and maneuver.

Answer the following questions.

1. Boundaries are used by the _____ commander to designate a geographical area for which a particular subordinate unit has responsibility.
2. Within his designated boundaries, the subordinate unit commander has complete freedom of _____ and _____.
3. Using the figure below, what action is necessary before any fire support means, other than those specifically called by the 1st Bn or its subordinate units, may fire upon target AB1215 in the 1st Bn zone of action?



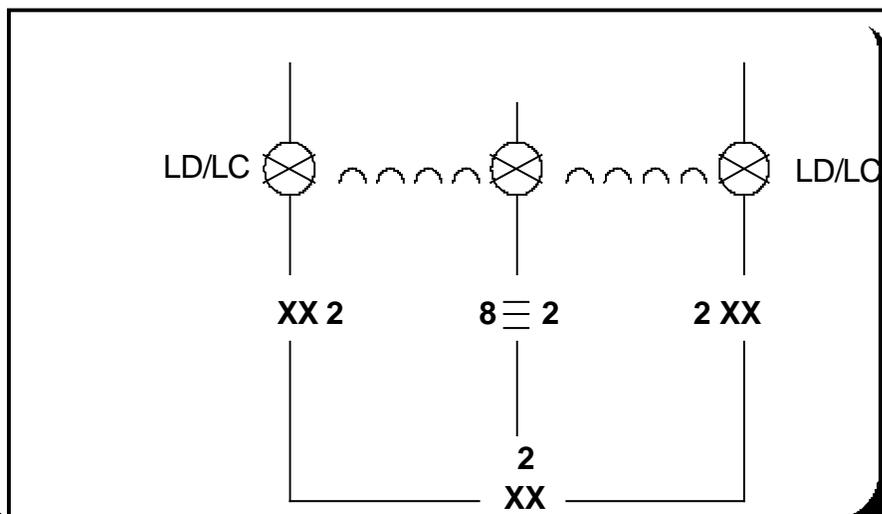
Answers.

1. Maneuver
2. Fire and Maneuver
3. Before any fire support means, other than those called directly by the 1st Bn, may fire on target AB1215 in the 1st Bn zone of action, approval must be obtained from the 1st Bn commander. All fire support delivered on targets within the 1st Bn zone of action will normally be coordinated by the 1st Bn FSC or his designated representative.

Zones of fire are assigned to artillery and NGF units for control of fires laterally and in depth to support operations. Lateral limits within which a unit must be able to fire may be designated by azimuths or boundaries. Zones in depth may be designated by means of minimum or maximum range lines prescribed for supporting fires or by use of the forward or rearward extensions of the lateral boundaries of the supported force. The zone of fire for an artillery unit is dictated by the assigned tactical mission. For example, the direct support mission specifies that the zone of fire is the zone of action of the supported force. Since the maneuver commander may want to weight certain portions of his zone of action with artillery, a uniform coverage is not essential. However, the DS battalion should be able to engage the majority of targets acquired within the supported maneuver unit's zone of action.

Answer the following questions.

1. Using vertical lines, denote the zone of fire of the DS artillery battalion for the 2d Marines.
2. Using horizontal lines, denote the zone of fire of the GS artillery battalion for the 2d MarDiv.



Answer.

