Ω **OMEGA Training Group, Inc.**

MOUT ACTD

MOUT ACTD PROGRAM HANDBOOK #1

EXPERIMENTAL TACTICS, TECHNIQUES, AND PROCEDURES FOR THE INFANTRY RIFLE PLATOON AND SQUAD IN URBAN COMBAT

SUBMITTED TO:
U.S. ARMY

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1 APRIL 1999

OMEGA TRAINING GROUP, INC.

VERSION 7

INTRODUCTION

The purpose of this introduction is to provide a brief background explanation of the front-end analysis process. This process has led to writing of an experimental handbook on urban combat for the Infantry rifle platoon and squad as a complement to FM 7-8. This introduction also explains the technology insertion aspects of this document and the format. **This document is for use as a training product for the Military Operations in Urbanized Terrain Advanced Concept Technology Demonstration experimentation only.** This experimental handbook is not meant to replace anything in FM 7-8 but to augment it with specific information for urban combat.

This handbook is a result of a review of FM 7-8; a review of FM 90-10-1; the work accomplished on the Experimental Collective Tasks for the Infantry Rifle Platoon and Squad in Urban Combat; Experimental Doctrine for the Mechanized Infantry Platoon and Squad; Experimental Individual Tasks for the Infantryman in Urban Combat; Army Experiments #1 through #5 technology insertion information; USMC Experiments #1 through #3 technology insertion information; Army Experiment #6 and USMC Experiment #4 technology insertion information where available; as well as tactics, techniques, and procedures gleaned from many sources. It focuses solely on combat in urban areas and assumes a working knowledge of the current FM 7-8.

Much of this proposed handbook has been extracted from FM 90-10-1 with Change 1 with the emphasis on tailoring that information for use by the Infantry rifle platoon leader and squad leader. In addition to FM 90-10-1, many other sources were used. To cite a few of the sources used: 75th Ranger Regiment Training Circular 350-1-2, USAJFKSWCS Special Text 31-20-6-1, lessons learned from Somalia and Grozny, British Army doctrine, USMC doctrine, and the MOUT ACTD technology insertion information provided by Lieutenant Colonel Benton, the MOUT ACTD Experiment Plans Officer and later, Division Chief for MOUT ACTD, DBBL.

This document is designed to be a reference/resource for base line MOUT information for the MOUT ACTD experimentation technology insertion for Army Experiment # 6, where it is envisioned that the technology will have military utility.

A description of the information provided for each technology used during the ACTD to date is included at Appendix A. Note that all appendices are provided under separate cover and are not included in the basic document. The information provided for each technology was the basis for inclusion throughout the text. The format we used to distinguish the addition of technology insertion information to separate it from base line TTP was to place a text box with the information in the appropriate paragraph throughout the document.

EXAMPLE:

R-8, Remote Marking Munitions: Remote-marking munitions (shotgun and M203) could be used to mark known or suspected enemy sniper positions/locations.

The results of the technology selections from the experimentation to date are also included at Appendix A along with a list of sample technology insertions.

A list of technology insertions in this document by page number is located at Appendix B.

Writing this document is a continuing process. There will be several iterations. The paper/electronic files are numbered by version. This is Version 7, produced for Army Experiment #6 after including observations from Army Experiments #1 through #5. This document will be adjusted for each experiment based on:

a. The feedback from the soldiers conducting the experiment.

b. The feedback from the customers (DBBL, DOT, CATD).

c. The observations of the Omega personnel in the field observing the experiments. These observations are included in bullet format at Appendix C.

This document has been closely coordinated with the Omega Training Group personnel who are writing similar training products for the Marine Warfighting Lab at Camp Lejeune, so the experimental doctrine/TTP included are suitable for Joint Operations with the Marine Corps.

The M72 LAW and the M202 FLASH have been included even though most Army units do not have ready access to these weapons and these tasks have been deleted from current Soldier's Manuals. They still exist in war stocks and the US Navy is still actively procuring the M72 LAW. The M72 LAW is a much more versatile and effective weapon in urban combat than the weapons that replaced it, which had the "Fulda Gap" battle in mind. The M202 FLASH has no replacement in the active inventory but flame weapons have historically been useful in urban terrain.

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THE INFANTRY RIFLE PLATOON AND SQUAD IN URBAN COMBAT

OMEGA TRAINING GROUP APPENDICES TO THE HANDBOOKS

The following appendices are designed to provide further explanation to the MOUT ACTD handbooks for experimentation purposes only. They are not designed to be part of any field manual. They are published separately from this handbook since they are applicable to all the handbooks.

PREFACE

This handbook provides the infantryman at squad and platoon level with tactics, techniques, and procedures for fighting an enemy in urban areas who may or may not be separated from the civilian population. The probability is great that the United States will become engaged by enemy forces who are intermingled with the civilian population. Therefore units using the tactics, techniques, and procedures outlined in this handbook must be aware of and obey the Rules of Engagement (ROE) issued by their headquarters and the laws of land warfare.

This handbook focuses solely on combat in urban areas and assumes a working knowledge of the current FM 7-8.

The information in this handbook deals only with Infantry forces in combat situations in built-up areas. It does not include sections for operations other than combat in built-up areas. Those operations that may be conducted by Infantry forces in Stability Operations and Support Operations that are not strictly combat operations are covered in FM 7-98, Operations in a Low-Intensity Conflict; FM 100-23, Peace Operations; and FM 90-8, Counterguerrilla Operations. However, many TTP included here are applicable in other than combat operations. This handbook has concentrated on the conditions under which platoon and squad combat tasks are conducted rather than on a larger view of the overall operation being conducted in an urban environment by a higher echelon unit.

CHAPTER 1

INTRODUCTION

"I led my platoon headquarters group with the engineer team north past two buildings, attempting to gain sight of the company. Small arms fire began to intensity from the direction of travel farther up the hill. The M60 gunner engaged targets from the corner of what appeared to be some sort of garage. All he was actually doing, however, was drawing fire; every time he engaged someone, the RPG fires into our location intensified. I instructed the gunner to engage only identified targets to limit the RPG fires and not suppress the area. He said that he was *only engaging identifiable targets and that there were a lot of people up the road." Mark A. B. Hollis, platoon leader, 10th Mountain Division in Somalia. INFANTRY Magazine, January-April 1998.*

1-1. INTRODUCTION TO URBAN COMBAT

The normal tendencies of American forces have been to avoid urban combat whenever possible, to pass through, and to fight in urban areas only as a last resort. The increased population and accelerated growth of cities have limited the ability to avoid combat in built-up areas. More attention must be given to urban combat. Urban terrain is likely to be one of the most significant future areas of operations for American forces throughout the world. Expanding urban development affects military operations as the terrain is altered. Although current American doctrine still applies, the increasing focus on operations short of war, urban terrorism, and civil disorder emphasizes that combat in built-up areas is unavoidable. Urban areas are the power centers, the centers of gravity, and thus the future battlefield.

1-2. ARMY OPERATIONS

Army Operations doctrine describes how America's Army, as part of a joint team, intends to conduct war and military operations other than war. It is based on securing or retaining the initiative and exercising it aggressively to accomplish the mission. The five basic Army Operations tenets of initiative, agility, depth, synchronization, and versatility are constant. During combat in built-up areas, the principles of Army Operations doctrine still apply. However, urban areas are not just a different type of terrain. Built-up areas dramatically change the entire environment in which combat operations will be conducted.

1-3. DEFINITIONS

Military Operations on Urbanized Terrain (MOUT) is defined as all military actions that are planned and conducted on terrain where man-made construction affects the tactical options available. These operations are conducted to defeat an enemy that may be mixed in with noncombatants or to seize terrain that may contain culturally or historically important structures and may house noncombatants. Therefore, the Rules of Engagement (ROE) and use of combat power are normally more restrictive than in other

conditions of combat. Due to political change, advances in technology, and the Army's role in maintaining world order, urban combat now takes on greater dimensions than before. Infantrymen conduct urban combat operations under many varying conditions across the spectrum of conflict. These conditions range from large-scale, high-intensity combat through isolated actions against armed belligerents mixed with noncombatants to peace operations that may resemble dangerous police work more than traditional combat in built-up areas. The terms below are expressions used to describe the US force's degree of sensitivity to political considerations during the operation being conducted. The definitions below provide clarity and focus for leaders conducting tactical planning for combat in an urban environment. However, at the platoon and squad level, the ROE contain the information that drives the planning and limits the options available to the leader.

a. **High-Intensity Conditions of Urban Combat**. Infantry units must be prepared at all times to conduct violent combat under high-intensity conditions of urban combat. These conditions are combat actions against a determined enemy occupying prepared positions or conducting planned attacks. High-intensity conditions of urban combat require the coordinated application of the full combat power of the joint combined arms team. An Infantry unit's mission is normally to seize, to secure, to clear, or to defend urban terrain, engaging and defeating the enemy by the use of whatever force is necessary. Although the changing world situation may have made urban combat under high-intensity conditions less likely for US forces, it represents the high end of the combat spectrum, and units must be trained for it. High-intensity conditions of urban combat can be casualty-intensive for both sides. Even though the full, integrated firepower of the joint combined arms team is brought to bear on the enemy, leaders must still make attempts to limit unnecessary destruction and casualties among noncombatants. Historical examples of urban combat under high intensity conditions include Stalingrad and Arnhem. A recent example of high-intensity urban combat conditions is the Russian experience in Grozny where the Russians ended up fighting block by block and creating tremendous collateral damage even though that was not their intention at the onset of the operation.

b. **Precision Conditions of Urban Combat**. Conventional forces conduct combat operations under these conditions to defeat an enemy that is mixed with noncombatants. Infantry units of all types must routinely expect to operate under precision conditions of urban combat. They conduct combat operations carefully under these conditions to limit noncombatant casualties and collateral damage. Under precision conditions, either the enemy is thoroughly mixed with the noncombatants or political considerations require that the ROE be significantly more restrictive than under high-intensity conditions. It may also require specific tactics, techniques, and procedures (TTP) for precise use of combat power. Some of this combat can be quite violent for short periods. It is marked, however, by conscious acceptance by US forces of the need to focus and restrain the combat power used. The platoon or squad leader may bring overwhelming force to bear, but only on specific portions of the urban area

occupied by the enemy. He may choose different TTP to remain within the bounds of the more restrictive ROE. Precision conditions require strict accountability of individual and unit actions through strict ROE. These changes require that soldiers be given time to train for the specific operation. For example, when clearing a room, units may have to practice slightly different TTP. This may be done to lessen the possible casualties among noncombatants interspersed with the enemy and to handle the noncombatants. Additional training on precision conditions may be necessary before the soldiers are prepared to execute the mission. A recent examples is Operation Just Cause in which American soldiers had to severely restrict their use of firepower in most areas. The beginning phases of the operation in Mogadishu, Somalia are similar.

c. **Surgical Conditions of Urban Combat**. Operations conducted under surgical conditions include special-purpose raids, small precision strikes, or small-scale personnel seizure or recovery operations in an urban environment (for example, hostage rescue). Joint special operation forces usually conduct these operations. They may closely resemble US police operations by Special Weapons and Tactics (SWAT) teams. They may even involve cooperation between US forces and host nation police. Though regular units may not usually be involved in the actual surgical operation, they may support it by isolating the area, by providing security or crowd control, or by providing search and rescue teams. A recent example of this type of operation is Mogadishu, Somalia in which 10th Mountain Division soldiers had to provide a relief/rescue convoy for a special operations forces mission.

d. **Stability Operations and Support Operations.** Infantry units conduct these operations, which are normally short of actual combat, to support national policy. These operations may include humanitarian operations, the evacuation of American nationals, and peacekeeping operations. Recent examples include operations in Mogadishu, Somalia; in Monrovia, Liberia; and in Bosnia. Since these operations are not strictly combat operations, they are not covered in this handbook. They are covered in FM 7-98, Operations in a Low-Intensity Conflict; FM 100-23, Peace Operations; and FM 90-8, Counterguerrilla Operations. There are lesson plans for many subjects in TC 7-98-1. These operations can resemble precision operations and can easily turn into combat operations.

e. **Confusion and Crossover Between Types of Conditions.** As in Mogadishu, there may be many types of operations occurring at the same time and certain types of operations can easily be transformed into others by enemy actions. The specific type of conditions may not have much meaning to the individual soldier but the ROE must be understood and adhered to by all.

1-4. CITIES AND THE THREAT IN BUILT-UP AREAS

Cities are the centers of finance, politics, transportation, communication, industry, and culture. Therefore, they have often been scenes of important confrontations in recent years (Table 1-1). The Commonwealth of Independent States and other nations that use

Soviet doctrine have traditionally devoted much of their training to urban combat exercises. Indications are that they believe such combat is unavoidable in future conflicts. The threat of combat in built-up areas cannot be limited to countries using former Soviet doctrine. Throughout many Third World countries, the possibility of combat in built-up areas exists through acts of the national armies which may not based upon any western or former Soviet model. American forces may also face the forces of local warlords as well as insurgents, guerrillas, and terrorists.

a. Combat operations in built-up areas are conducted to capitalize on the strategic and tactical advantages of the city and to deny those advantages to the enemy. Often, the side that controls a city has a psychological advantage, which can significantly affect the outcome of larger conflicts.

b. Especially in insurgencies, combat occurs in cities. In developing nations, control of only a few cities is often the key to control of national resources.

CITY	YEAR	CITY	YEAR
*SAIGON	1968	TYRE	1982
*KONTUM	1968	*BEIRUT	1983
*HUE	1968	*PANAMA CITY	1989-1990
BELFAST	1972	*COLON	1989-1990
MONTEVIDEO	1972	*KUWAIT CITY	1991
QUANGTRI CITY	1972	MOSCOW	1992
AN LOC	1972	RIGA	1992
SUEZ CITY	1973	*MOGADISHU	1992
XUAN LOC	1975	*MONROVIA	1992
SAIGON	1975	SARAJEVO	1994
BEIRUT	1975-1978	GROZNY	1995
MANAGUA	1978	*HAITI	1995
ZAHLE	1981	KINSHASA	1997

*Direct US Troop Involvement

Table 1-1. Cities involved during recent conflicts.

c. Built-up areas also affect military operations because of the way they alter the terrain. In the last 40 years, cities have expanded, losing their well-defined boundaries as they extended into the countryside. New road systems have opened areas to make them passable. Highways, canals, and railroads have been built to connect population centers. Industries have grown along those connectors, creating "strip areas". Rural areas, although retaining much of their farm-like character, are connected to the towns by a network of secondary roads. These trends have occurred in most parts of the world, but they are the most dramatic in Western Europe where cities tend to grow together to form one vast built-up area. Such growth patterns block and dominate the historic armor

avenues of approach, or decrease the amount of open maneuver area available to an attacker.

R-40, Virtual Mission Planner: A virtual mission planner may be used to plan missions and conduct platoon and squad briefbacks and rehearsals. The virtual imagery of buildings and blocks may be especially useful in planning and rehearsing offensive operations. Visualizing where all the elements of a unit are during the fight will allow planning, increase situational awareness, and prevent fratricide.

NOTE: Conventional maps and overlays must be maintained and used as a back up system if a virtual mission planner is used, in the event of a system failure.

d. Extensive urbanization provides conditions that a defending force can exploit. Used with mobile forces on the adjacent terrain, antitank forces defending from built-up areas can dominate avenues of approach, greatly improving the overall strength of the defense.

1-5. CATEGORIES AND CHARACTERISTICS OF BUILT-UP AREAS

A built-up area is a concentration of structures, facilities, and people that forms the economic and cultural focus for the surrounding area. There is no "standard" urban terrain.

a. Built-up areas are classified into four categories. Each area affects operations differently:

- Villages (population of 3,000 or less).
- Strip areas (urban areas built along roads connecting towns or cities).
- Towns or small cities (population up to 100,000 and not part of a major urban complex).
- Large cities with associated urban sprawl (population up to the millions, covering hundreds of square kilometers).

b. Built-up areas consist mainly of man-made features such as buildings. Buildings provide cover and concealment, limit fields of observation and fire, and block movement of troops, especially mechanized troops. Thick-walled buildings provide ready-made, fortified positions. Thin-walled buildings that have fields of observation and fire may also be important. Another important aspect is that built-up areas complicate, confuse, and degrade command and control.

c. Streets are usually avenues of approach. However, forces moving along streets are often canalized by the buildings and have little space for off-road maneuver. Thus, obstacles on streets in towns are usually more effective than those on roads in open terrain since they are more difficult to bypass.

R-5, Intelligence Collection/Dissemination: Leaders should consider the use of an Unmanned Aerial Vehicle (UAV) or an Unmanned Ground Vehicle (UGV) for overflight mapping and reconnaissance of a objective area. This will allow reconnaissance of the objective area without the enemy learning the strength, location, or intentions of the main element.

d. Subterranean systems that are found in some built-up areas are easily overlooked but can be important to the outcome of operations. They include subways, sewers, cellars, and utility systems (Figure 1-1).

1-6. CHARACTERISTICS OF COMBAT IN BUILT-UP AREAS

Urban terrain may be another operating environment but there are many conditions that separate MOUT from other environments. The terrain is not neutral in an urban environment; the terrain itself can be an enemy. The urban fight depends on size of the built-up area and type of resistance. US technological advantages are often not very useful in an urban environment. Air power may not be of any assistance to a light infantry force fighting from building. An adept enemy will use the technique of "hugging" American forces to deny them use of their overwhelming firepower. The training and equipment for the fight against a mobile, armored Soviet threat in Western Europe will not necessarily be of much use in an urban environment. The urban fight is primarily an infantry fight, requiring significant numbers of infantry to accomplish the mission. Urban combat is a squad/team fight. It is characterized by moment-to-moment decisions by individual soldiers; this demonstrates the importance of ROE training. The platoon leader needs to facilitate the squad fight by anticipating what the squad leader needs for his fight. Unit goals have to be speed, precision, and minimization of soldiers in close combat with the enemy. The greatest threats might be: snipers, grenade launchers, booby traps, and antitank (AT) weapons. Soldiers can expect boobytraps on doorways and windows and on entrances to underground passageways. This is a three-dimensional and 360-degree fight.

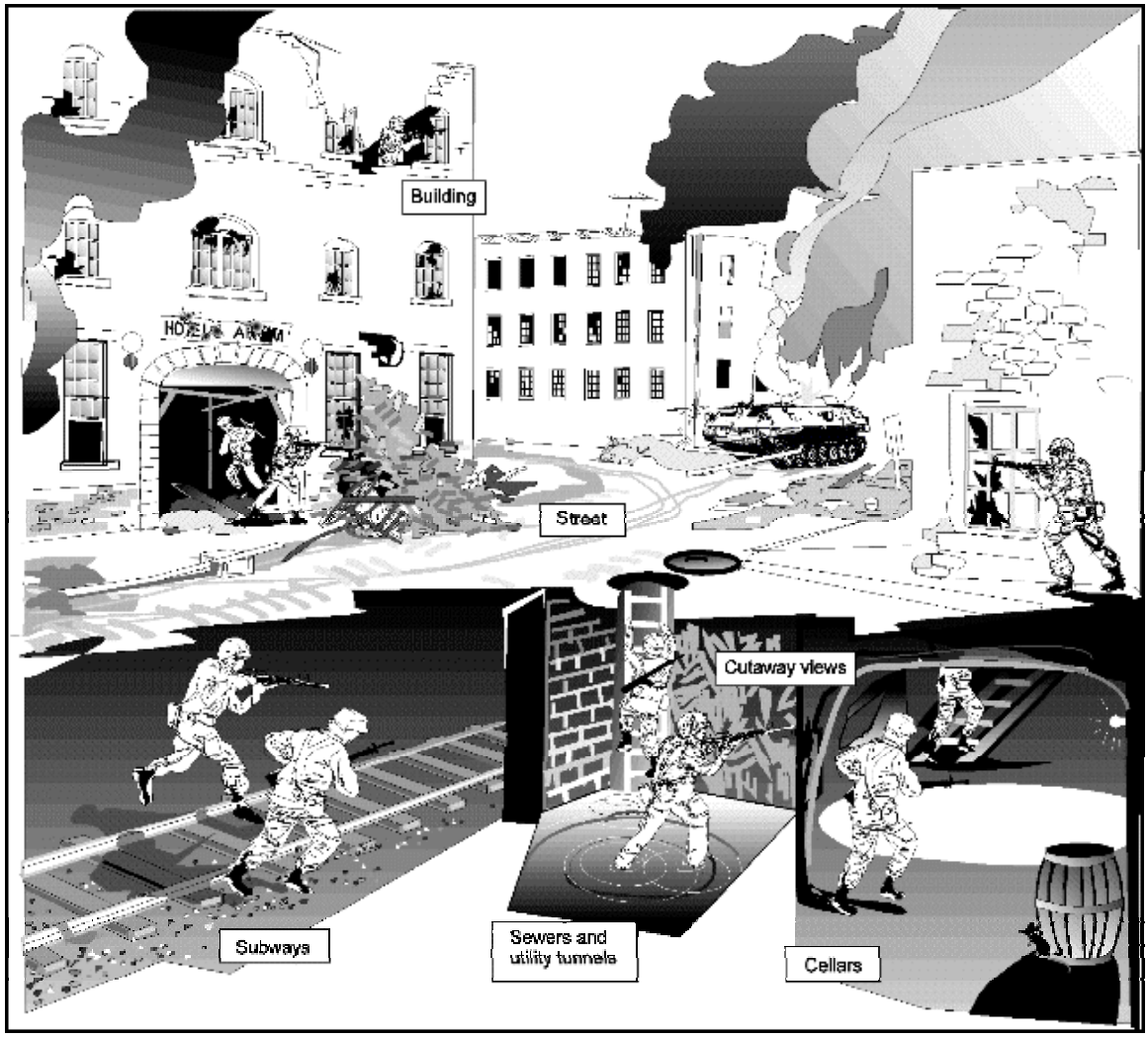


Figure 1-1. Underground systems.

a. **Multiple Levels of Combat.** Platoons and squads will find themselves engaged in one condition or another of urban operations Changes from high-intensity conditions of urban combat to precision or surgical conditions are a result of significant alterations in the existing conditions of METT-T and of the imposition of overriding strategic political considerations. These alterations normally require that units modify the way they fight in urban areas. The change from operations other than combat to combat conditions or the change from high-intensity to precision conditions is determined by METT-T and by the ROE. These decisions are normally made at echelons much higher than platoon and squad and have very little effect on the conditions under which any specific platoon or squad operates. The ROE determine these conditions for the infantry platoon and squad.

b. **Target Engagements.** In the city, the ranges of observation and fields of fire are reduced by structures as well as by the dust and smoke of battle. Targets are usually briefly exposed at ranges of 100 meters or less. As a result, combat in built-up areas consists mostly of close, violent combat. This requires strict fire control and proper identification of friend or foe. Infantry will use mostly light and medium antitank weapons, automatic rifles, machine guns, and hand grenades. Opportunities for using antitank guided missiles are restricted because of the short ranges involved and the many obstructions that interfere with missile flight. Danger close is normal for use of indirect fires in most firefights.

R-8, Remote Marking Munitions: The M203 TPT round used as a remote marking munition could mark the sniper's suspected or known location for targeting by tanks, BFVs, or direct fire artillery, if the ROE permit.

WARNING

The M203 TPT round has a metal projectile body that can ricochet and cause injuries.

c. **Small Unit Battles.** Units fighting in built-up areas often become isolated or feel like they are isolated, making combat a series of small-unit battles. Soldiers and small-unit leaders must have the initiative, skill, and courage to accomplish their missions while isolated from their parent units. A skilled, well-trained defender has tactical advantages over the attacker in this type of combat. The defender occupies strong covered and concealed static positions and conducts three-tier ambushes, whereas the attacker must be exposed in order to advance. Greatly reduced line-of-sight ranges, built-in obstacles, and compartmented terrain require the commitment of more troops for a given frontage. While the defense of an urban environment can be conducted effectively with relatively small numbers of troops, the troop density required for an attack in built-up areas can be as much as five times greater than for an attack in open terrain. Individual soldiers must be trained and psychologically ready for this type of operation.

d. **Munitions and Special Equipment.** Forces engaged in fighting in built-up areas use large quantities of munitions because of short ranges, limited visibility, briefly exposed targets, constant engagements, and requirements for suppression. M72 LAWs, Ranger Antiarmor Weapons Systems (RAAWS/Carl Gustavs), AT-4s, rifle and machine gun ammunition, 40-mm grenades, hand grenades, and explosives are high-usage items in this type of fighting. When possible, those items should be either stockpiled or brought forward on-call, so they are easily available.

R-27, Man Size Hole: Leaders should consider the use of the Beast or Explosive Cutting Tape (ECT) for creating man sized breaches both on the exterior and interior of buildings, allowing soldiers access for assaulting and movement in and through buildings.

e. **Communications.** Urban operations require centralized planning and decentralized execution. Therefore, communications plays an important part. Leaders must trust their subordinates' initiative and skill, which can only occur through training. The state of a unit's training and cohesion are vital, decisive factors in the execution of operations in built-up areas.

(1) Structures and a high concentration of electrical power lines normally degrade radio communications in built-up areas. Many buildings are constructed so that radio waves will not pass through them. New radios may correct this problem, but all units within the built-up area may not have these radios and they may not be compatible with older radios. Newer radios may also cause problems with frequency management.

(2) Visual signals may also be used but are often not effective because of the screening effects of buildings, walls, and so forth. Signals must be planned, widely disseminated, and understood by all assigned and attached units. Increased noise makes the effective use of sound signals difficult. Verbal signals may communicate the location and intent of the unit to the enemy.

(3) Messengers and wire can be used as other means of communication. Wire should be considered a great alternate means of communications if assets are available.

R-3, NLOS Radio: Due to the line of sight (LOS) nature of unit TO&E FM radios and the decentralized nature of combat in urban terrain, the use of a non-line of sight (NLOS) radio for improved communication capabilities should be considered. This type of radio may also be able to provide the user with hands off capabilities, minimum body movement for operation, and remote channel/frequency changing. If fielded to each soldier, it may provide the capability of a unit “intercom”.

NOTE: Because of their lack of secure capability, transmissions on these radios must be considered as being monitored by enemy forces, news media, and any entity with a minimum of technology. Transmissions must be characterized by the use of call signs, authentication, and prowords to transmit data.

f. **Noncombatants.** The urban battlefield is likely to be full of noncombatants. Beside the normal urban inhabitants, these include refugees, nongovernmental

organizations, and the international media. For example, during the fighting in Grozny, there were 150,000 refugees out of a pre-fight population of 450,000. There were 50,000 non-combatant casualties during the fight. US Forces will have to be prepared to deal with all categories of noncombatants. Forces will have to be diverted from combat operations to deal with them.

1-7. STRESS

A related problem of combat in built-up areas is stress. Continuous close combat, intense pressure, high casualties, fleeting targets, and fire from a concealed enemy produce psychological strain and physical fatigue for the soldier. Such stress requires consideration for the soldiers' and small-unit leaders' morale and the unit's esprit de corps. Rotating units that have been committed to heavy urban combat for long periods can reduce stress. For example, during the fighting in Grozny, 72 percent of the Russian soldiers demonstrated some kind of psychological disorder including: sleep disturbances, neurotic reactions, and physical exhaustion. Leaders need to be aware of the potential for these problems and be prepared to deal with them.

1-8. FRATRICIDE

Because of the decentralized nature of execution in the urban environment leaders must consider fratricide in their planning process. The overriding consideration in any tactical operation is the accomplishment of the mission. However, they must weigh the risk of fratricide against losses to enemy fire when considering a given course of action. Fratricide is avoided by an understanding of doctrine and adherence to it; by tactics, techniques, and procedures; and by rigorous, realistic, challenging training.

a. **Doctrine.** Doctrine consists of the fundamental principles by which the military forces or elements guide their actions in support of national objectives. Doctrine provides the basic framework to accomplish the mission. Leaders must thoroughly understand US, joint, and host nation doctrine. This thorough understanding prevents fratricide between allies.

b. **Tactics, Techniques, and Procedures (TTP).** TTP provide a "how-to" that everyone understands. TTP are disseminated in doctrinal manuals and unit standing operating procedures (SOPs).

(1) ***Tactics.*** Tactics is the employment of units in combat or the ordered arrangement and maneuver of units in relation to each other and the enemy in order to use their full potential. This ordered arrangement prevents fratricide between neighboring units.

(2) ***Techniques.*** Techniques are the general and detailed methods used by troops or commanders to perform assigned missions and functions. Specifically, techniques are the methods of using weapons and personnel. These methods are

designed to limit fratricide that other methods may not. Techniques describe a method, but not the only method.

(3) ***Procedures.*** Procedures are standard, detailed courses of action that describe how to accomplish a task. These procedures strictly limit occasions where fratricide is possible.

c. ***Planning.*** A simple, flexible maneuver plan that is disseminated to the lowest level of command will aid in the prevention of fratricide. Plans should make the maximum possible use of unit SOPs and battle drills at the user level. They should incorporate adequate control measures and fire support planning and coordination to ensure the safety of friendly troops and allow changes after execution begins. During the planning phase of an operation, it is essential for leaders at every level to allocate time for rehearsals of critical tasks. Well-planned and executed rehearsals are critical in the prevention of fratricide.

R-40, Virtual Mission Planner: A virtual mission planner may be used to plan missions and conduct platoon and squad briefbacks and rehearsals. The virtual imagery of buildings and blocks may be especially useful in planning and rehearsing offensive operations. Visualizing where all the elements of a unit are during the fight will allow planning, increase situational awareness, and prevent fratricide.

NOTE: Conventional maps and overlays must be maintained and used as a back up system if a virtual mission planner is used, in the event of a system failure.

d. ***Execution.*** The execution of the plan must be monitored, especially with regard to the location of friendly troops and their relationship to friendly fires. Subordinate units must understand the importance of accurately reporting their position and by not bypassing control features without coordination.

e. **Training.** The most important factor in the prevention of fratricide is individual and collective training in the many tasks that support urban combat.

(1) ***Situational awareness.*** Well-trained soldiers accomplish routine tasks instinctively or automatically. Soldiers trained to a high level will possess a high level of confidence that will allow them to focus on what is happening on the battlefield. They can maintain an awareness of the relative location of enemy and friendly forces.

(2) ***Rehearsal.*** Rehearsal is training for the mission at hand. Leaders at every level must allow time for this critical task. Soldiers who understand the mission required of them and the relative positions of the other soldiers and units are less likely to fire upon friendly forces.

(3) ***Train to standard.*** Soldiers that are trained to the Army standards are prepared to adapt to any situation. Soldiers trained in live fire exercises, target detection and discrimination, and reflexive firing techniques are more capable of distinguishing friend from foe and combatant from noncombatant.

(4) ***Training techniques.*** Some tips and techniques for training for MOUT can be found in TC 90-1, Training for Military Operations on Urbanized Terrain.

1-9. RESTRICTIONS AND RULES OF ENGAGEMENT (ROE)

The law of land warfare prohibits unnecessary injury to noncombatants and needless damage to property. US forces don't have the option to destroy all or parts of an urban area and kill large numbers of noncombatants. Units will always be faced with adhering to Rules of Engagement of some kind. This may restrict the use of certain weapons and tactics. Although a disadvantage at the time, this restriction may be necessary to preserve a nation's cultural institutions and to gain the support of its people. This demonstrates a real need for host nation cultural orientation on the part of US forces. Units must be highly disciplined so that the law of land warfare and ROE are obeyed. Leaders must strictly enforce orders against looting and expeditiously dispose of violations against the UCMJ.

a. **Rules of Engagement.** ROE have a significant impact on how operations are conducted during MOUT. Under high intensity conditions of urban combat, the ROE may be as simple as limiting collateral damage as much as possible as required by the Law of Land Warfare. Under precision conditions, the ROE given to the unit will be much more restrictive than under high-intensity conditions. For example, conditions of urban combat might require ROE that include not being able to fire unless fired upon. Clearing a building may include clearing rooms that are occupied by noncombatants. This severely restricts what munitions may be used, what breaching techniques may be used, and what clearing techniques may be used, as well as reaction to snipers. ROE may also require maximum use of nonlethal means as much as possible prior to use of lethal means. Unless the troops are well trained and disciplined and the leaders are in control, ROE can be forgotten very quickly.

b. **Collateral Damage.** One of the most significant issues raised is that of collateral damage. Collateral damage is the unintended and undesirable civilian personnel injuries or materiel damage adjacent to a target produced by the effects of friendly weapons. ROE may specify what collateral damage is acceptable or unacceptable. For example, ROE may identify a specific building that may not be damaged due to its historical, cultural, or religious significance. Leaders and soldiers at every level need to be able to define the limitations of collateral damage in regard to the mission/task.

c. **Changes to Rules of Engagement.** Although general Rules of Engagement are specified at very high levels, the specific rules given to a platoon and squad for their

mission may not by achievable due to enemy actions. Leaders at all levels may need to request clarification or changes to the Rules of Engagement that they have been given in order to be able to protect the force under their command.

R-24, Frangible Ammunition: In some instances, to prevent the possibility of injury to friendly inhabitants, consider the use of 5.56-mm and 7.62-mm Controlled Penetration Ammunition (CPA) "Soft Round" which will penetrate human bodies/walls and then stop either in the body or in the wall.

WARNING

Because frangible ammunition disintegrates upon impact with any surface harder than the projectile itself, safety glasses should be worn to protect eyes from fragments.

NOTE: The use of frangible ammunition will prevent firing through objects (furniture, walls, etc.). This could place the unit at a severe disadvantage against an enemy not so equipped.

1-10. SITUATIONAL AWARENESS

Situational awareness is defined as the degree to which one is able to maintain a clear picture of all aspects of the tactical situation. This picture includes an understanding of the friendly and enemy situation and an understanding of the urban battlespace. Since the infantry platoon and squad will have to conduct operations in changing mission environments, it is imperative for leaders at all levels to achieve and maintain the best possible degree of situational awareness. Enhanced situational awareness will enhance lethality, survivability, and operational tempo.

a. **Enemy Situation.** Leaders must maintain a clear picture of enemy strength and locations. This information is initially provided to leaders in warning orders, FRAGOs, or OPORDs. This information must be updated and disseminated vertically up the chain of command and laterally across units. This is especially important in urban conditions where the closeness and density of the terrain often restricts information that can be gathered on the enemy. In addition to enemy strength and locations, other considerations include:

- Size and locations (buildings, blocks, parking lots, etc.) of enemy reserves.
- Types and numbers of weapons.
- Probable courses of action (what will the enemy do now and later).
- Locations of enemy command posts within the urban area.

- Locations of enemy CS and CSS assets within the urban area.

b. **Friendly Situation.** It is imperative that leaders maintain an accurate picture of the location of their unit with respect to friendly units operating to their front, flanks, and rear. This information is initially provided in warning orders, FRAGOs, and OPORDs. Friendly information must be updated vertically up the chain of command and laterally across units as the mission is executed or as the situation warrants. Squad leader cross-talk on the platoon net can help facilitate updating the friendly situation. Leaders can enhance knowledge of the friendly situation through the thorough use of graphics such as boundaries, phase lines, check points, contact points, limits of advance, and so on on easily identifiable urban terrain features (streets, street intersections, buildings, prominent building features, and so on). Other friendly considerations include:

- Location of key personnel.
- Locations of key weapons.
- Locations of CS and CSS assets.
- Understanding the company commanders' intent and the mission end-state.
- Availability of indirect fire support and CAS.

c. **Urban Battlespace.** Leaders can enhance situational awareness by maintaining a clear picture of their urban battlespace. Urban battlespace includes buildings, streets, subterranean areas, and urban airspace. Leaders must be able to identify building types, construction materials, and building design and must understand the effectiveness and limitations of weapons against these factors. Leaders must also understand that combat under urban conditions will require them to visualize a three dimensional battlespace. Building dimensions, locations of urban terrain features such as alleys; utilities; and subterranean areas such as sewers, subways, and cellars will affect the leader's ability to issue timely and effective orders as the situation changes. Leaders must be aware of how their urban battlespace is changing as friendly and enemy forces move and as environmental conditions change. An important step in this process is to eliminate or reduce gaps within the unit's battlespace. This can be done by the timely movement of assault, support, and breaching elements in the offense, repositioning of squads in the defense, and through the synchronization of CS and CSS assets. Other factors that will impact battlespace are:

- Handling non-combatants.
- Rules of engagement. ROE will affect mission execution at the squad

and platoon level more than any factor. ROE will determine which targets will be engaged as well as when and how they will be engaged. It is imperative that updated ROE be communicated to subordinates and enforced by all leaders.

- Weather.

R-3, NLOS Radio: Due to the line of sight (LOS) nature of unit TO&E FM radios and the decentralized nature of combat in urban terrain, the use of a NLOS radio for improved communication capabilities should be considered. This type of radio may also be able to provide the user with hands off capabilities, minimum body movement for operation, and remote channel/frequency changing. If fielded to each soldier, it may provide the capability of a unit "intercom".

NOTE: Because of their lack of secure capability, transmissions on these radios must be considered as being monitored by enemy forces, news media, and any entity with a minimum of technology. Transmissions must be characterized by the use of call signs, authentication, and prowords to transmit data.

R-40, Virtual Mission Planner: A virtual mission planner may be used to plan missions and conduct platoon and squad briefbacks and/or rehearsals. The virtual imagery of buildings and blocks may be especially useful in planning and rehearsing offensive operations. Visualizing where all the elements of a unit are during the fight will allow planning, increase situational awareness, and prevent fratricide.

NOTE: Conventional maps and overlays must be maintained and used as a back-up system if a virtual mission planner is used, in the event of a system failure.

CHAPTER 2

CONSIDERATIONS OF URBAN COMBAT

2-1. GENERAL

Combat operations in a built-up area may be violent and intense but have a slower pace and tempo than operations in open terrain, and an increase in methodical, synchronized missions. Unlike open terrain, platoons cannot maneuver quickly due to the close, dense environment. Looking for ambushes and booby traps while conducting operations in urban terrain also degrades speed, thus increasing the duration of enemy contact. Due to the dense environment and the restricted ability to use all available weapon systems, synchronization of combat power will be one of the platoon leader's main challenges. The rifle platoon will rarely, if ever, conduct operations in urban terrain except as a part of a larger operation.

The planning, preparation, and conduct of offensive and defensive operations in an urban area are basically the same as any other offensive and defensive operation. However, urban combat imposes a number of demands that are different from ordinary field conditions, such as problems with troop requirements, maneuver, and use of equipment. As with all operations, the platoon leader must retain his ability to close with the enemy by means of fire and maneuver to defeat or capture him, or to repel his assault by fire, close combat, and counterattack.

A plan must be based on METT-T factors, with emphasis on fire support, preparation time, work priorities, and control measures. The platoon leader must focus on the synchronization of maneuver forces and the fire support plan to accomplish the assigned mission. Combat service support (CSS) may play a more critical role in the urban environment than any other offensive operation because of the extreme demand for ammunition and the resupply difficulties. The demand for barrier material may stress CSS assets during defensive operations.

Refer to Chapter 5 for information on attachments and other assets that are not organic to the platoon.

2-2. COMMAND AND CONTROL

Planning is centralized but execution is decentralized. Although units fight as part of a coordinated battle, combat in urban terrain has a tendency to make small units feel isolated. Leaders should position themselves well forward so that they can control the action and provide assistance to subordinate leaders. In a built-up environment, this is even more critical due to obstacles, poor visibility, difficulty in communication, and intense fighting.

a. **Rules of Engagement.** Each leader will have to ensure that his soldiers understand and comply with the Rules of Engagement.

b. **Command.** Soldiers and units require mission-type orders that are restrictive in nature. They use detailed control measures to ease decentralized execution. Increased difficulties in command, control, and communications from higher headquarters demand increased responsibility and initiative from junior leaders. Graphic control measures common to other tactical environments are also used in combat in built-up areas. Streets are ideal for phase lines. These and other control measures ensure coordination throughout the chain of command.

c. **Control.** In built-up areas, radio communications are often less effective than field telephones and messengers. Units often fight without continuous communications, since dependable communications are uncertain. Pyrotechnic signals are hard to see because of buildings and smoke. The high noise level of battles within and around buildings degrades voice alerts. Voice communications can also signal the unit's intention and location to the enemy.

R-3, NLOS Radio: Due to the line of sight (LOS) nature of unit TO&E FM radios and the decentralized nature of combat in urban terrain, the use of a NLOS radio for improved communication capabilities should be considered. This type of radio may also be able to provide the user with hands off capabilities, minimum body movement for operation, and remote channel/frequency changing. If fielded to each soldier, it may provide the capability of a unit "intercom".

NOTE: Because of their lack of secure capability, transmissions on these radios must be considered as being monitored by enemy forces, news media, and any entity with a minimum of technology. Transmissions must be characterized by the use of call signs, authentication, and prowords to transmit data.

(1) ***Establish communications.*** Communications equipment may not function properly because of the massive construction of buildings and the environment. Platoon leaders should consider these effects when they allocate time to establish communications. Line-of-sight limitations affect both visual and radio communications. Wire laid at street level is easily damaged by rubble and vehicle traffic. Also, the noise of urban combat is much louder than in other areas, making sound signals difficult to hear. Therefore, the time needed to establish an effective communications system might be greater than in more conventional terrain. Platoon leaders should consider the following techniques when planning for communications:

- If possible, lay wire through buildings for maximum protection.
- Use existing telephone systems. However, telephones are not always secure even though many telephone cables are underground.

- Emplace radios and retransmission sites on the upper floors of a building.
- Open doors and windows to enhance the flow of FM signals.
- Construct field expedient antennas to enhance capabilities.
- Use windows and holes in walls to extend antennas for better communications.
- Use messengers at all levels since they are the most secure means of communications.

R-3, NLOS Radio: Due to the line of sight (LOS) nature of unit TO&E FM radios and the decentralized nature of combat in urban terrain, the use of a NLOS radio for improved communication capabilities should be considered. This type of radio may also be able to provide the user with hands off capabilities, minimum body movement for operation, and remote channel/frequency changing. If fielded to each soldier, it may provide the capability of a unit "intercom".

NOTE: Because of their lack of secure capability, transmissions on these radios must be considered as being monitored by enemy forces, news media, and any entity with a minimum of technology. Transmissions must be characterized by the use of call signs, authentication, and prowords to transmit data.

(a) *Oral commands*. Oral commands are effective, but not in buildings where the positions are separated by wall partitions between rooms. The distance between positions on different floors of the building are too great or battle noise too loud for them to be heard.

(b) *Arm-and-hand signals*. Arm-and-hand signals are effective when other team members are in sight.

(c) *Prearranged signals*. Either visual or sound signals (pyrotechnics, blasts from a whistle or horn) may be used. Prearranged signals should be included in the SOP and should be known by all team members.

(d) *Personal contact*. Physical contact between soldiers and leaders is used often in small units such as squads or fire teams. As they move between positions, the leaders must use maximum cover and concealment to keep from revealing the locations of the positions.

(2) ***Graphic control measures*.** The use of more graphic control measures and understanding of the commander's intent at all levels becomes even more important to mission accomplishment in an urban environment. Phase lines such as streets and alleys and railroad lines can be used to report progress or to control the advance of attacking units. In large buildings, boundaries may be between different floors. Checkpoints aid in reporting locations and controlling movement. Contact points are used to designate specific, easily identifiable points where units make physical contact such as a mailbox or doorway of a building.

R-40, Virtual Mission Planner: A virtual mission planner may be used to plan missions and conduct platoon and squad briefbacks and rehearsals. The virtual imagery of buildings and blocks may be especially useful in planning and rehearsing offensive operations. Visualizing where all the elements of a unit are during the fight will allow planning, increase situational awareness, and prevent fratricide.

NOTE: Conventional maps and overlays must be maintained and used as a back up system if a virtual mission planner is used, in the event of a system failure.

(3) ***Standing operating procedures (SOP)***. These are actions to be executed without command. They are developed and practiced during training. The SOP gets rid of many commands and eases the platoon leader's job. An example of what might be included in a unit SOP is requirements for marking cleared rooms, floors, and buildings. Another good example is direct fire control. The most common method a leader uses to start and direct fire is by personal example:

- The men hear the leader fire and see where he fires.
- They fire at the same place.
- The leader can use tracers to help the other soldiers find the targets.

2-3. MISSION

The platoon leader must receive, analyze, and understand the mission before he begins planning. The rules of engagement must be clearly stated. The platoon leader may receive the mission as a warning order, a fragmentary order (FRAGO), or an operations order (OPORD).

a. **Mission Analysis.** When conducting his analysis, the platoon leader must consider the overall intent of the operation in regard to the requirement for clearance of the urban area and he must analyze all specified and implied tasks. In the offense, the platoon leader must understand if clearance means every building, block by block, or the seizure of a key objective, which may only require clearing along the axis of advance. The platoon leader must have these questions answered before he begins his

planning. In defensive operations, mission analysis is similar to that of any other environment, taking into account the special terrain. In both cases, the platoon must be prepared to deal with noncombatants in their area of operations.

b. **Special Planning Considerations.** Operations must be tailored to the urban environment based on a detailed analysis of each urban terrain setting, its types of built-up areas, and existing structural form. (See FM 34-130, Chapter 2, for details of terrain analysis.) Platoon leaders and subordinate leaders must incorporate the following considerations for an urban environment when conducting an operation:

- Military maps do not provide enough detail for urban terrain analysis or reflect the underground sewer system, subways, underground water systems, mass transit routes, and utility facilities. Even city maps generally do not have these features on them.

R-5A, Intelligence Collection/Dissemination: Leaders should consider the use of an Unmanned Aerial Vehicle (UAV) for overflight mapping and reconnaissance of a objective area. This will allow reconnaissance of the objective area without the enemy learning the strength, location, or intentions of the main element.

R-5B, Intelligence Collection/Dissemination: Leaders should consider the use of an Unmanned Ground Vehicle (UGV) for reconnaissance of the inside of tunnel systems, buildings, and other objective areas. This will allow reconnaissance of the objective area without the enemy learning the strength, location, or intentions of the main element.

- Natural terrain surrounding the built-up area may change maneuver and fire control.

- Key and decisive terrain (stadiums, parks, sports fields, school playgrounds, public buildings, and industrial facilities) may be quite different in urban areas than in less restrictive terrain A small, single building may be an objective for a rifle squad, or if the building is larger, for a rifle platoon or even a company. It might also be the position(s) designated for the platoon in the defense.

- The construction/structural composition of buildings affects what equipment will have to be carried or brought forward to the unit.

- The confined spaces of urban terrain limit observation, fields of fire, and maneuver. This also prevents the concentration of fires at critical points.

- The nature of enemy actions in urban terrain require that covered and concealed routes within the built-up area be used to allow movement within buildings and between buildings.

- Urban terrain limits the ability of a unit to employ maximum combat power due to the need to minimize civilian casualties and damage and rubbling effects.

R-24, Frangible Ammunition: In some instances, to prevent the possibility of injury to friendly inhabitants, consider the use of 5.56-mm and 7.62-mm Controlled Penetration Ammunition (CPA) "Soft Round" which will penetrate human bodies/walls and then stop either in the body or in the wall.

WARNING

Because frangible ammunition disintegrates upon impact with any surface harder than the projectile itself, safety glasses should be worn to protect eyes from fragments.

NOTE: The use of frangible ammunition will prevent firing through objects (furniture, walls, etc.). This could place the unit at a severe disadvantage against an enemy not so equipped.

- There has historically been a greater demand in urban areas for ammunition and barrier material, thus imposing unusual strains on logistics elements.

- Due to the restrictive terrain of urban areas, there are problems with conducting effective reconnaissance.

- Rules of Engagement may severly limit the use of firepower.

- Significant numbers of noncombatants may have to be evacuated, some forcibly. Noncombatants may hinder operations, either merely by their presence or on purpose.

(1) ***Understanding the mission.*** When the unit is involved in clearing operations, bypassing buildings increases the risk of attack from the rear or flank. Thus, the clearing unit generally must enter, search, and clear each building in its zone of action as well as leave security to prevent reoccupation of buildings. If this is not tasked, it should be made clear to the platoon leader upon receipt of his mission from his commander. This point should be clarified before beginning an offensive mission.

(2) ***Movement.*** Moving from building to building or between buildings presents a problem because units present a large target to enemy fire. Movement is generally conducted in fire teams but this is not a hard and fast rule. When moving from the corner of one building across a danger area to the corner of another building, the fire team should move across the open area in a group. Moving from the side of one building to the side of another presents a similar problem and the technique of movement employed is the same. The fire team should use the buildings as cover. In moving to the adjacent building, team members should keep well dispersed and, using a planned signal, make an abrupt flanking movement (on line) across the open area to the next building, minimizing time spent in the open and reducing the size of the target.

c. **Coordination of Fire Support.** Prior coordination is made to determine the techniques and procedures to use for communication, target identification, and shifting of fires.

R-8, Remote Marking Munitions: Leaders should consider the use of the M203 TPT round as a remote-marking munition to facilitate fire control and distribution.

WARNING

The M203 TPT round has a metal projectile body that can ricochet and cause injuries.

Additional consideration must be given to the civilian population, houses of worship, medical centers, schools, public services, and historical monuments. The fire support plan can include the integration of tanks, mounted infantry weapons, dismounted infantry weapons, artillery, and combat engineer vehicles/equipment. (See Chapter 5 for further details about combined arms and indirect fires.)

d**. Common Missions.** Infantry units should expect the same kind of missions in urban terrain that they receive in other terrain, such as attack, raid, and defend. These operations are conducted as part of a company operation. Platoons and squads seldom perform independent operations in urban combat but because of the environment and the type of combat to be expected but they can become isolated and seem to be alone. The following are typical platoon missions:

(1) ***Attack into a building.*** The most common platoon offensive mission in a built-up area is the attack into a building (Figure 2-1). The platoon must kill, capture, or force the withdrawal of all enemies in the building or secure the building. The platoon maintains a sufficient force capable of repelling an enemy counterattack and conducting further combat operations. The platoon must comply with the rules of engagement (ROE). The assault has three steps:

Figure 2-1. Attack of a building.

(a) *Isolate the building*. This is normally coordinated at company level. Isolating the building prevents the escape or reinforcement of its defenders. However, the platoon may isolate a small building for a squad to enter and clear.

(b) *Enter the building*. Entry at the top and clearing downward is the preferred method of clearing a building. This is commonly not possible.

R-28, Get on Top of Building: Soldiers should consider the use of devices that allow them to assault the top of buildings without climbing an interior stairwell.

1. It is preferable not to use a door or window as an entry. When the only entry to a building is through a window or door, supporting fire should be directed at that location initially if the ROE permit. If possible, and the ROE permit, entry through doors and windows should only be made after use of an explosive breaching device unless a stealthy entry is desired. The use of an explosive breaching device will normally set off booby traps and give a momentary advantage to entering forces due to the distraction effect of the blast concussion.

R-27, Man Size Hole: Leaders should consider the use of the Beast or Explosive Cutting Tape (ECT) for creating man sized breaches both on the exterior and interior of buildings, allowing soldiers access for assaulting and movement in and through buildings.

2. When making a new entrance in a building, the platoon leader considers the effects of the explosive or ballistic blast on the building and adjacent buildings. If there is the possibility of a fire in adjacent buildings, key leaders coordinate with adjacent units and obtain permission from higher headquarters before starting the operation. In wooden frame buildings, the blast may cause the building to collapse.

R-30A, Breaching Devices: When explosives cannot be used or are not appropriate or available for breaching, the assault team should consider the use of non-explosive breaching devices such as the Hooligan's Tool, etc., to force open doors, windows, and to create mouseholes.

3. Before entering, depending on the situation and the ROE, soldiers may throw a cooked-off hand grenade through the entrance. Grenades may be fragmentation, concussion, flash-bang or other distraction devices. Selection of the type of grenade is made based upon leaders' estimate of the situation and the ROE. The thrown hand grenades are used to suppress any resistance inside the building and to reinforce the distraction effects of the original breaching blast (if used). This may not be necessary if the entry can be made immediately after an explosive breach.

(c) *Clearing the building from the top down*. To clear a building, troops preferably go quickly to the top floor and clear from the top down. Clearing a building is easier from an upper story since gravity and building construction become assets to the assault force when throwing hand grenades and moving from floor to floor.

R-28, Get on Top of Building: Soldiers should consider the use of devices that allow them to assault the top of buildings without climbing an interior stairwell.

- An enemy who is forced to the top of a building may be cornered and fight desperately or escape over the roof. But an enemy who is forced down to the ground level may withdraw from the building, thus exposing himself to friendly fires from the outside.

- Various means, such as ladders, drainpipes, vines, ropes, grappling hooks, helicopters, or the roofs and windows of adjoining buildings may be used to

reach the top floor or roof of a building. In some cases, one soldier can climb onto the shoulders of another and reach high enough to pull himself up.

(c) *Clearing the building from the bottom up*. Clearing the building from the top down is only feasible, however, when access to an upper floor or rooftop can be gained. Although the top-to-bottom method is preferred for clearing a building, assaulting the bottom floor and clearing upward is a common method in all areas. In this case, the assault team clears each room on the ground floor and then, moving up, begins a systematic clearance of the remaining floors.

(2) ***Defense.*** Defense of an urban area is planned utilizing employment of platoons and squads.

(a) *Employment of platoons*. Once the commander has decided where to defend, he should select platoon battle positions or sectors that block or restrict the enemy's ability to maneuver and control key areas. Along with his primary and alternate positions, the platoon leader normally selects one supplementary position to reorient his defense to meet enemy threats from another direction. A platoon will normally defend a group of small buildings or one larger building.

(b) *Employment of squads*. Squads are usually employed abreast so that they all can fire toward the expected direction of attack. In a built-up area, rooms within buildings may separate squads. Squad positions must be mutually supporting and allow for overlapping sectors of fire, even if buildings or walls separate the positions. A squad will normally be assigned a small building or a portion of a building to defend.

(3) ***Counterattacks.*** Platoon counterattacks are planned at company level to meet each probable enemy penetration. They must be well coordinated and executed violently. Preferably, counterattacks should be directed at an enemy flank and supported with direct and indirect fire.

(a) *Reasons*. Platoons may be given the mission of counterattacking for one of two reasons:

- To recapture a defensive position or a key point (destroying or ejecting an enemy foothold).

- To stop an enemy attack (forcing him to stop and adopt a hasty defense).

(b) *Requirements*. Counterattacks require:

- An analysis of the probable avenues of enemy approach.

- Reconnaissance and rehearsal along each counterattack route and of each proposed overwatch position.

R-5A, Intelligence Collection/Dissemination: Leaders should consider the use of an Unmanned Aerial Vehicle (UAV) for overflight mapping and reconnaissance of a objective area. This will allow reconnaissance of the objective area without the enemy learning the strength, location, or intentions of the main element.

R-5B, Intelligence Collection/Dissemination: Leaders should consider the use of an Unmanned Ground Vehicle (UGV) for reconnaissance of the inside of tunnel systems, buildings, and other objective areas. This will allow reconnaissance of the objective area without the enemy learning the strength, location, or intentions of the main element.

- Construction of obstacles and fighting positions to canalize or block the enemy.

- Gaps or lanes through these obstacles if the counterattacks are to be quick enough to affect the action.

- Rapid and aggressive execution; leaders must set the example.

- Flexibility to react to unforeseen circumstances.

- Analysis of the probable counter-counterattack routes by the enemy.

- A fire support plan for the counterattack and possible counter-counterattack.

2-4. ENEMY

The platoon leader considers the type, size, organization, tactics, and equipment of the enemy he expects to encounter. With the help of his commander and the S-2, he identifies their greatest threat to his mission and their greatest vulnerability.

a. **Conventional Forces.** Many third world countries have adopted techniques of urban combat from either the United States or the Commonwealth of Independent States. Therefore, the future threat may consider the motorized or mechanized rifle battalion the most effective unit for urban combat because of its inherent mobility, armor protection, and ability to quickly adapt buildings and other structures for defense.

- These types of threat defenses are organized into echelons to provide greater depth and reserves.

- Company strongpoints are prepared for perimeter defense and form the basis for the battalion defensive position.

- The reserve is located in a separate strongpoint.

- Ambush locations are established in the gaps of the strongpoints, and dummy strongpoints are constructed to deceive the attacker.

- Positions for securing and defending the entrances to and exits from underground structures and routes are established.

- Security positions are prepared forward of first echelon defensive positions.

- A motorized/mechanized rifle company may defend several buildings with mutually supporting fires or use a single large building as part of a larger defensive system.

- Each platoon defends one or two buildings or defends one or two floors of a single building.

b. **Other Types of Forces.** Forces present in many underdeveloped countries are neither what has come to be expected as a modernized threat nor do they present a classical insurgency type of situation. Some forces may be semi-skilled light infantry as might be found in several African countries which have recently undergone civil wars such as the Democratic Republic of the Congo (formerly Zaire). These troops are normally poorly trained, equipped, and motivated. Using the case of the Congo as an example, 40% of the populace comes from the cities, which are the locations of most of the recent conflicts. These forces should not be underestimated. They know the terrain and may have the support of the population. Other types of forces may include local warlords' personal armies, such as found in Somalia. Another type of force may include semi-organized groups of thugs loosely under the control of an individual, such as found in Haiti or in the form of the "Dignity Battalions" in Panama. A final source of organized force may be the police force or gendarmerie. In some countries, the gendarmerie is a more effective fighting force than the army.

c. **Unconventional Forces.** Enemy analysis is similar to that for Low Intensity Conflict (LIC) during urban counterinsurgency, counterguerrilla, and counterterrorist operations. (See FMs 34-130 and 7-98 for details of intelligence preparation of the battlefield (IPB) in counterinsurgency operations.)

d**. Analyzing Enemy Movement Capabilities.** In the defense, if the attacker is mostly infantry, the greatest danger is allowing him to gain a foothold. If the attacker is mostly armored forces or mounted motorized/mechanized infantry, the greatest danger

is that he will mass direct fire and destroy the platoon's positions. All troops must be alert to an enemy that may appear from the flanks, from above, or from underground passages.

e. **Intelligence gathering.** Intelligence gathering for urban operations is not limited only to studying the enemy. The items of intelligence peculiar to combat in built-up areas may include:

- Street, water, and sewer plans.
- Key installations and facilities.
- Inhabited and uninhabited buildings.
- Key civilians.
- Civilian police and paramilitary forces.
- Sources of food and water.
- Communications facilities and plans.
- Power stations.

R-5A, Intelligence Collection/Dissemination: Leaders should consider the use of an Unmanned Aerial Vehicle (UAV) for overflight mapping and reconnaissance of a objective area. This will allow reconnaissance of the objective area without the enemy learning the strength, location, or intentions of the main element.

R-5B, Intelligence Collection/Dissemination: Leaders should consider the use of an Unmanned Ground Vehicle (UGV) for reconnaissance of the inside of tunnel systems, buildings, and other objective areas. This will allow reconnaissance of the objective area without the enemy learning the strength, location, or intentions of the main element.

f. **Snipers.** The three general types of snipers are the specially trained and equipped individual, the trained marksman, and the armed civilian irregular. Each has different characteristics of operation and may be used to accomplish different purposes. Countermeasures that are effective against one type may be less effective against another. US forces can expect to see more and more snipers during urban combat operations of the future.

(1) ***Specially trained sniper.*** This specially trained and equipped individual is the most dangerous sniper. He is normally equipped with a modern scope-mounted sniper rifle. These individuals are expert shots and are trained to select key individuals as their targets. They can hit at great range (sometimes out to 1,000 meters) and are skilled in avoiding detection. They are normally members of an organized, armed force and wear a standard uniform that may be modified to provide better camouflage. Their actions are carefully integrated into the enemy's overall plan of operation. This sniper is the most difficult to counter effectively.

(2) ***Trained marksman.*** The trained marksman is a common sniper often found in urban combat. This sniper is a trained soldier, equipped with a standard issue weapon, who is an above-average shot. He normally has fair to good fieldcraft skills and is difficult to detect in the urban environment. He may be employed singly or in pairs to create confusion among friendly forces, cause casualties, or harass and disrupt the tempo of operations. The enemy in an economy-of-force role or as a rear guard often uses him as a covering force while the main enemy force withdraws. He may also be placed on the perimeter of a defended urban area to provide early warning of the approach of friendly forces and to disrupt and cause them to deploy early. The trained marksman is a dangerous foe. He can be found in fairly large numbers in the armies of many potential adversaries. He is normally a member of an organized, armed force and wears a standard uniform. He may, however, be a guerrilla fighter, in which case he may not wear a recognizable uniform and may try to move among noncombatants.

(3) ***Armed civilian irregular.*** The third general type of sniper is the armed irregular. He may have little or no formal military training but may have much experience in urban combat. He may or may not wear any distinguishing uniform and may even strive to appear to be merely another of the thousands of noncombatants found in a large urban area. He may or may not carry his weapon openly and may go to great lengths to avoid identification as a sniper. His fires are normally not accurate, and he seldom deliberately targets specific individuals. His actions are not normally integrated into an overall enemy plan, although his attacks may be loosely coordinated with others in his general area. Although this type of sniper has the least ability to cause heavy losses among US forces, he has high value as an element of harassment, and he may achieve results far out of proportion to his actual ability to cause casualties.

g. **Countersniper Tactics, Techniques, and Procedures.** Countersniper TTP by US forces involves two types of actions: active countermeasures and passive countermeasures. Each has its place, depending on the METT-T conditions under which the unit is operating. Most sniper countermeasures are not new TTP for well-trained combat troops. They are simply common sense actions taken routinely while in a combat area to limit exposure to fire, conceal positions, move tactically, and respond to enemy contact. Some countermeasures are not routine, however, and require additional training emphasis. No matter which TTP are employed, successful countersniper

measures present leaders at all levels with a challenge to maintain unit discipline. The sniper has the initiative. Units must not implement countermeasures halfheartedly. To do so invites casualties from snipers who can wait hours for the moment a unit's guard is down.

(1) ***Active countermeasures.*** Active countermeasures both detect and destroy the sniper before he can fire, or engage and neutralize him after he fires. ROE will determine what level of countermeasures a unit might employ. Active countermeasures include the use of:

- Observation posts and aerial observers. Observers can maintain a constant surveillance over potential sniper positions and detect snipers as they attempt to move into a position for a shot.

R-5A, Intelligence Collection/Dissemination: Leaders should consider the use of an Unmanned Aerial Vehicle (UAV) for over flight mapping and reconnaissance of a objective area. This will allow reconnaissance of the objective area without the enemy learning the strength, location, or intentions of the main element.

- Patrols. Constant reconnaissance and security patrols around a unit's position hinder a sniper's getting into a firing position undetected. Small patrols are the most effective.

R-33, Detect Sniper: The location of the sniper may be determined by the use of an acoustic-based detection system.

- US Snipers. US snipers can be most effective as a counter to enemy snipers. Not only do they have an expert knowledge of sniping and likely enemy hiding places, they can normally engage enemy marksmen and irregulars at a greater range than the enemy sniper can engage US forces.

- Unit Weapons. If an enemy sniper engages a unit, ROE determine how the unit can respond. It may only be authorized to respond with fire from all its light weapons or it may be able to respond with all available firepower. In an urban area, the direction of enemy fire, especially of a single rifle shot, is often difficult to determine. If a unit can determine the general location of a sniper, it should return suppressive fire while maneuvering a subunit to engage the sniper from close range.

R-8, Remote Marking Munitions: The M203 TPT round used as a remote marking munition could mark the sniper's suspected or known location for targeting by tanks, BFVs, or direct fire artillery, if the ROE permit.

WARNING

The M203 TPT round has a metal projectile body that can ricochet and cause injuries.

- The use of overmatching return fires, such as the 25mm gun on the Bradley Fighting Vehicle (BFV), .50 cal machine gun (MG), Tube-launched, optically tracked, wire guided missile (TOW), Hellfire missile, Dragon missile, Javelin missile, and even the 120mm main gun of an M1 main battle tank (MBT). ROE may prevent this.

- Lasers. The use of lasers to detect and counter enemy snipers is a new application for this technology. Laser range finders and target designators are effective against those who may look in their general direction, regardless of whether a telescope is being employed. An enemy sniper looking through a telescope or binoculars or scanning a US position at night is more vulnerable to laser destruction. Although laser devices do not damage buildings or penetrate rooms, care must be taken at close ranges to avoid unnecessary civilian casualties from their use in built-up areas.

- Pre-emptive Fires. In urban combat, pre-emptive fires can often be used against likely sniper positions. This technique is more often used during offensive operations. It uses large amounts of ammunition but can be very effective for short attacks. At the squad and platoon level, it usually consists of supporting fires from the machine guns organic to the unit. Fragmentation fires from artillery, mortars, and grenade launchers are best for suppressing snipers whose position has not yet been detected. ROE may prevent pre-emptive fires.

- Smoke. Smoke that builds quickly is a good response to protect a unit from further casualties if engaged by an enemy sniper.

- Helicopter-carried countersniper teams. Not only can helicopters provide aerial observation and fires or insert additional combat patrols and reaction forces, they can also carry countersniper teams that can engage identified enemy snipers from the air.

(2) ***Passive countermeasures.*** Passive countermeasures prevent the sniper from detecting a clear target or prevent his fires from causing casualties. Many of the passive countermeasures are not unique to countering enemy snipers. They are common sense actions taken by all well-trained infantry units in a combat area to limit exposure and minimize casualties. However, passive countersniper measures are rarely successful by themselves. Among the most common passive countermeasures are:

- Limit Exposure. Basic situational awareness while in an urban environment must be adhered to. Avoid gathering together in large groups in the open. Remain dispersed. Avoid wearing obvious badges of rank. Avoid exaggerated saluting or standing at attention for officers while in the open. If troops are riding in the cargo area of trucks, keep the canvas cargo cover mounted to screen them. This countermeasure may not be appropriate if there is threat of ambush by other enemy forces in addition to snipers.

- Wear Protective Equipment. The kevlar helmet and the protective vest will not always stop a sniper bullet, but in many cases they will significantly reduce the severity of wounds. Soldiers must wear them at any time they are exposed to potential sniper fire. In situations where foot movement across country is not required, request and issue soldiers special, heavy, protective vests that are actually bulletproof. All members of units assigned to static positions, such as roadblocks and observation posts, should wear this additional protection.

- Use Armored Vehicles. Whenever possible, move around the urban area in a protected vehicle with as little exposure as possible.

- Erect Screens and Shields. Use simple canvas or plastic screens to make a dangerous alleyway or street crossing much safer for foot traffic. Adapt screens on windows to allow vision out while hiding personnel inside. Use moveable concrete barriers to provide protection for personnel at static positions. Use common items, such as rubble-filled 55-gallon drums and sandbags, to provide cover where none exists naturally.

- Deny the enemy use of overwatching terrain. Either occupy such terrain with friendly forces or modify it to make it less useful to an enemy sniper.

- Use smoke haze or smoke screens to obscure a sniper's field of view and limit the effectiveness of his fires. A clear atmosphere is required for accurate long-range sniping. Smoke haze can be maintained over broad areas for long periods without significantly hindering friendly operations. Smoke screens can be created quickly and sustained for short periods, often long enough for US forces to accomplish a short-term objective free of sniper fires. Snipers

will rarely waste ammunition and risk giving away their position by firing blindly through obscurants.

(3) ***Reactions to a sniper.*** With the above active and passive countermeasures in place, a technique used to react to sniper fire can be used. The following assumes that in precision conditions, only the company's organic weapons support the Infantry platoon. Urban situations may require precise application of firepower. This is especially true of an urban environment where the enemy is mixed with noncombatants. The presence of civilians can restrict the use of fires and reduce the combat power available to a platoon leader. His platoon may have to operate with "no fire" areas. Rules of Engagement (ROE) can prohibit the use of certain weapons until a specific hostile action takes place. All soldiers must be aware of the ROE. Leaders must include the precise use of weapons in their planning for urban missions.

(a) The element in the kill zone reacts to enemy sniper fire. It immediately returns fire and takes up the nearest covered positions, throws smoke grenades if appropriate, and alerts the remainder of the squad to the direction of the sniper. It should mark the location of the sniper, if known. This element should suppress the sniper's position so that the remainder of the unit may maneuver against him.

R-33, Detect Sniper: The location of the sniper may be determined by the use of an acoustic-based detection system.

(b) Leaders control their unit's actions.

1. They control fires using standard fire commands containing the following elements: alert, direction, description of target, range, method of fire (manipulation and rate of fire), and the command to commence firing.

2. Locate and engage known or suspected enemy sniper positions with well-aimed fire.

3. Ensure personnel maintain contact with the personnel on their left and right.

4. Ensure personnel maintain contact with their leaders and report the location of the enemy sniper position.

5. Check the status of their personnel.

6. Pass all information up the chain of command.

7. Retrieve and treat casualties under supporting fire and smoke without needless exposure of other soldiers.

(c) The platoon/squad leader moves to the best position possible to control the fire and movement while controlling the suppression of the sniper. The platoon/squad leader:

1. Determines whether or not the element in the kill zone can and should move out of the engagement area.

2. Determines whether or not he can gain and maintain suppressive fires with his element in the kill zone (based on the volume and accuracy of enemy fires against the element in the kill zone).

3. Develops the situation through fire and/or maneuver. He makes an assessment of the situation by gaining information from subordinate leaders which:

- Identifies the location of the enemy sniper position and obstacles.
- Identifies the vulnerable flanks.
- Identifies covered and concealed flanking routes to the enemy position.

4. Determines the next course of action based upon his company commander's/platoon leader's intent and specified and implied tasks as well as the information gained when developing the situation.

5. Reports the situation to the company commander/platoon leader with his recommendation.

6. Calls for and adjusts indirect fires and direct fires from heavy weapons or close air support as required and as allowed by the ROE.

R-8, Remote Marking Munitions: The M203 TPT round used as a remote marking munition could mark the sniper's suspected or known location for targeting by tanks, BFVs, or direct fire artillery, if the ROE permit.

WARNING

The M203 TPT round has a metal projectile body that can ricochet and cause injuries.

7. Commands the element not in the kill zone to execute actions such as:

- Execute assault.

- Breach an obstacle.
- Perform overwatch/support by fire.
- Clear a building.
- Break contact.

8. Commands the element in the kill zone to execute actions such as:

- Execute assault.
- Breach an obstacle.
- Perform overwatch/support by fire.
- Clear a building.
- Break contact.

(d) The platoon continues the mission.

h. **Reaction to Grenades.** Urban combat can very easily become a grenade fight. Soldiers need to be trained to react to grenades. There are numerous types of grenades. Though they may be made differently, they have one commonality: They are extremely effective at close range. Grenades are designed to have a 360-degree bursting radius that can kill, maim, or cripple personnel within ranges of two meters to 100 meters. Most threat hand grenades have a fuze delay of 3.3 to 4.3 seconds before exploding. These delay times are not exact and should not be considered when responding to a thrown grenade. The delay time can be shortened, known as a "cook off", by holding the grenade for a certain period of time after the safety pin and spoon have been released.

1. To enhance individual survival, reactions must be instinctive when taking immediate action against grenades. The normal reaction to a thrown grenade is to run. Soldiers should be trained to seek close cover or fall to the ground and crawl to the nearest cover, locate the direction that the grenade came from, and return fire. The force from a grenade exploding on the ground or floor travels up and outward, catching anyone trying to run away. The survival rate is much higher for those who fall away from the grenade instead of wasting valuable time looking for cover.

2. Seeking cover from enemy direct fire can be trained; reaction to a grenade is more of a survival instinct. Training for grenades must be continuous and unannounced until the action becomes second nature. The following guidelines are important:

- Wear body armor.
- Upon seeing a grenade, call out "grenade" and try to identify the location.
- Do not run for cover more than one step away.
- Protect as much of the body as possible.
- After determining where the grenade landed, dive to the ground and seek cover once away from the grenade.
- Lie face down on top of your weapon, if possible.
- Once the grenade explodes, move quickly to cover.
- Any attempt to pick up a thrown grenade should be highly discouraged.

i. ***RPG-7***. The RPG-7 is a common threat weapon worldwide. It is lightweight and maneuverable and is accurate over ranges common to combat in built-up areas. In a conflict almost anywhere in the world, US forces must protect themselves against RPGs. The RPG warhead is moderately effective against armored vehicles particularly M113 armored personnel carriers. It is less effective against common urban hard targets. It has a limited effect against reinforced concrete or stone. Typically, the round produces a small hole with little spall. The RPG produces a small hole in earth berms with little blast effect and no spall. A triple layer of sandbags is usually protection against RPG rounds. Because of its fuze design, the RPG can often be defeated by a chain-link fence erected about 4 meters in front of a position. Even without such a barrier, a high percentage of RPG rounds fired against urban targets are duds due to glancing blows.

2-5. TERRAIN

Terrain in built-up areas is three-dimensional: ground level (streets and parks), above ground (buildings), and below ground (subways and sewers). Terrain analysis consists of an evaluation of the military aspects of the battlefield's terrain (OCOKA) and the weather to determine their effects on military operations. The military aspects of terrain are:

a. **Observation and Fields of Fire.** Leaders must carefully consider the situation and the equipment available before deciding whether to use visible, invisible (IR), or no artificial light during combat at close quarters. If possible, the first phase of the attack should be conducted when visibility is poor. Troops should exploit limited

visibility to cross open areas, to gain access to rooftops, to infiltrate enemy areas, and to gain a foothold. If the attack must be made when visibility is good, units should use smoke to conceal movement and for purposes of deception. Mission accomplishment is the most important criterion of night operations, not the use of special equipment. All the specialized night vision equipment in the US armory cannot replace a well-trained, skilled soldier intent on mission accomplishment. Even in today's era of high technology, no fail-safe system exists that allows an individual soldier to effectively identify and engage targets in total darkness.

(1) ***Equipment to aid vision during limited visibility.*** Some specialized night vision equipment is available to the soldier now; other equipment will be available in the future. Use of this equipment has advantages and disadvantages. In planning for a mission, leaders should choose the system that best suits their mission. For example, infrared (IR) and night vision goggles (NVG) are an asset during the stealthy approach to the target but may be a hindrance to the principles of speed and violence of action in a close-quarters battle. A technique would be for the unit to transition to white light as the attack begins. Leaders should never rely solely on a single system; mechanical systems are vulnerable to failure. When choosing the systems for a mission, weigh the consequences of a system failure and the impact upon mission accomplishment. The first priority is mission success and the survival of your men.

(a) *Aiming lights:*

- AN/PEQ-2 family. The AN/PEQ-2 is a dual laser system developed to allow a combination of both pinpoint aiming and broad beam target illumination. It can be handheld or mounted to a weapon for operation. The AN/PEQ-2 is available in three models allowing for the selection of laser, infrared, or infrared/visible light illumination sources. Once mounted on a weapon, the lasers on the AN/PEQ-2 can be easily and individually boresighted using the independent azimuth and elevation adjustments. The unit is waterproof to 20 meters. Under ideal conditions, the range of the laser pointer exceeds ten miles (Figure 2-2).

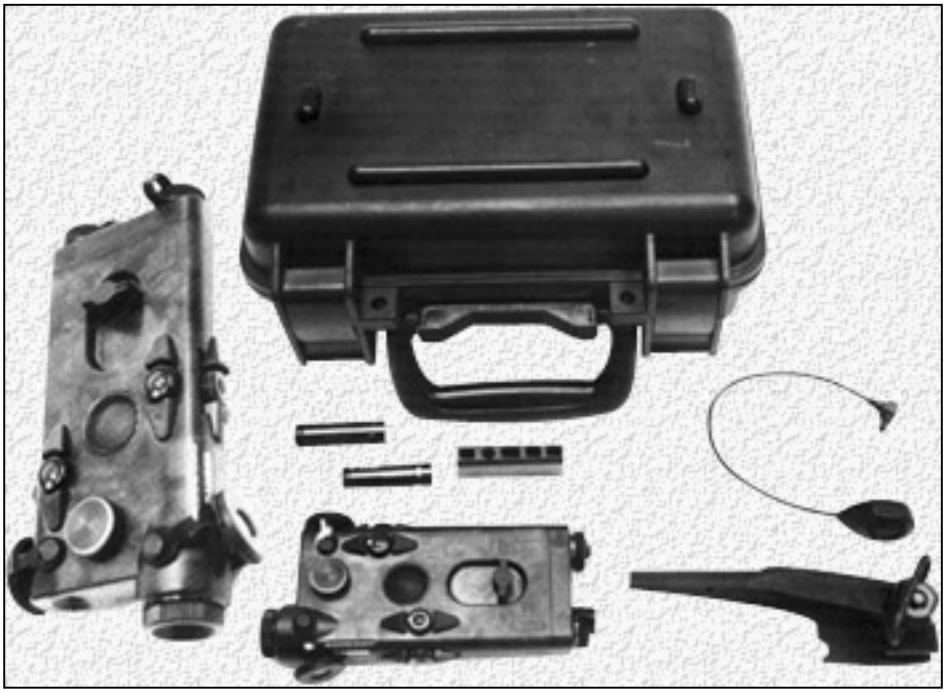


Figure 2-2. AN/PEQ-2.

- AN/PAQ-4 family. These devices project an invisible IR light along the weapon's line of sight, which can be seen with night vision devices, thus increasing the accuracy of night fire. These devices have a range of 600 meters. Depending on the model used, the IR beam can either be pulsating (AN/PAQ-4B) or steady beam (AN/PAQ-4C). Leaders and soldiers should ensure that the device is properly installed and zeroed to the weapon to enhance accuracy. These devices can be used in all night direct fire engagements or as a marking or signaling device during reduced visibility. Gunners with weapons equipped with the AN/PAQ-4 aiming light simply place the projected spot on the target and fire (Figure 2-3).

Figure 2-3. AN/PAQ-4B.

- The AN/PAQ-4C (NSN: 5855-01-361-1362) is an easy to mount, quick to zero aiming light with unmatched beam quality and range in an eye-safe device. It provides a rapid, accurate point for night engagements. This device, combined with the M16 mounting assembly, enables it to be easily zeroed when mounted on the M16A2 rifle. Windage and elevation adjustments enable fine zero adjustments to be accomplished. Two AA batteries power the aiming light.

- GCP-1A (NSN: 5855-01-420-0849). The Ground Commander's Pointer is an IR pointer and illuminator. Leaders use the GCP to designate targets, define sectors of fire, control fires, and illuminate targets. The light is invisible to the naked eye, but fully visible to NVGs and other NVDs. It is designed to provide clandestine target designation and illumination for night vision equipment users. The GCP IR light may be adjusted from a pencil beam, capable of pointing targets up to 4,000 meters and it may also be set on wide beam or flood light mode to illuminate large areas. The GCP has built in eye safe features. Two AA batteries power the GCP.

(b) *Night Observation Devices (NODs):*

- AN/PVS-4 night vision sight, individual served weapon. This sight is a self-contained night vision device that enables improved night vision using available ambient light. Leaders need to consider that the sight's effectiveness is impaired by rain, fog, sleet, snow, smoke, and other reflective matter. Leaders also must consider the effects that city lights, fires, and background illumination have on night vision devices. These elements could "white out" some NODs.

- AN/PVS-5 Night Vision Goggles (NVG). The AN/PVS-5 goggles are a lightweight battery-powered binocular passive night vision device worn on the head. The goggles have a 40-degree field of view. The system is normally operated in the passive mode but a built-in IR light source may be used to provide added illumination for close up viewing. The AN/PVS-7 goggles are currently replacing this system. Leaders must consider the effects that city lights, fires, and background illumination have on night vision devices. These elements could "white out" some NVG.

- AN/PVS-7 Night Vision Goggles (NVG). These goggles are lightweight, battery-powered passive devices worn on the head. They have an IR-emitting light source for close-up illumination. The AN/PVS-7 possesses a much better night vision capability in lower light levels than the AN/PVS-5 goggles. Leaders must consider the effects that city lights, fires, and background illumination have on night vision devices. These elements could "white out" some NVG (Figure 2-4).

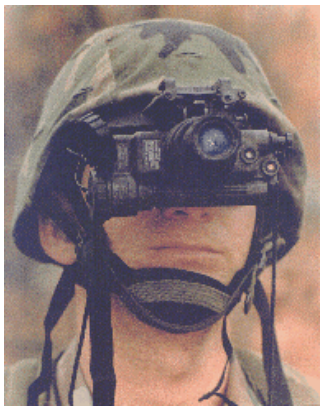


Figure 2-4. AN/PVS-7 Night Vision Goggles.

- AN/PVS-14 monocular night vision device. The AN/PVS-14 monocular night vision device is a hand-held, helmet-mounted, head-mounted, or weapon-mounted night vision device that enables walking, driving, weapon firing, short-range surveillance, map reading, vehicle maintenance, and administering first aid in moonlight and starlight. It has an IR light that provides illumination at close ranges (up to 3 meters in low ambient light conditions) and can also be used for signaling. The variable gain control is used to balance the illumination input to each eye. There is a "High Light Level" shut off if the device is exposed to damaging levels of bright light.

Figure 2-5. AN/PVS-14 monocular night vision device.

- Three-power magnifier for the AN/PVS-7 (NSN: 5855-01-391-7026). This device is a three-power magnification lens for the AN/PVS-7. The lens was developed to quickly convert the AN/PVS-7 NVG into a medium range vision binocular surveillance system. The lightweight unit easily attaches to the NVG by screwing the threaded end of the lens assembly into the mating threads in the NVG's objective lens. The lens is also adaptable to the AN/PVS-14 monocular night vision device.

(c) *Tactical lights.* These devices are small, lightweight, battery-powered white lights that can be attached to weapons. Either a pressure switch or an on/off switch activates the light. An IR filter can be attached to most tactical lights to provide IR and night vision device capability. The most common example of a tactical light is sold under the commercial brand name "MAGLITE". This light can be attached to weapons using hose clamps or heavy tape. They must be checked periodically because they can loosen and shift.

(d) *Red dot sights.* These devices are lightweight, battery-powered optical sights attached to the top of the weapon. A red dot in the sight aligns the weapon and the target. These sights are for use in low light levels, not in total darkness. They do not assist in identifying targets. The sights contain elevation and windage screws for zeroing the sight and a rotary switch that contains several settings to increase the intensity of the red dot for use in various light conditions.

(e) *Active laser devices.* These devices are lightweight, battery-powered, visible light-emitting sights. These devices, when zeroed, project a red dot onto the target that corresponds to the point of bullet impact. These devices are not effective in sunlight.

(f) *Thermal weapons sights.* In the near future, thermal weapons sights will be available to detect targets in total darkness. Leaders must consider the effects that structural fires and burning debris found throughout the city have on thermal weapons sights. These elements can make thermal imagery identification difficult.

(g) *Tritium sights.* These sights contain a light-emitting radioactive element that allows a firer to align the sights in total darkness. As long as the firer has a target in sight, he can effectively engage the target as he would during daylight hours. These sights will not assist the firer in identifying the target.

(h) *Hand-held IR flare/smoke.* This is a hand held tube with IR flare on one end and smoke on the other end. This device can be used to illuminate LZs, friendly positions, or provide a smoke screen. It emits IR light and burns hot at the core. Burn time for the smoke is approximately 16 seconds, and burn time for the flare is approximately 20 seconds.

(i) *Hand-held IR parachute signal (M127A1).* This parachute signal is a rocket-propelled, fin-stabilized item that is hand fired from an expendable type launcher. It is used for ground to ground, as well as ground to air signaling. The M127A1 produces an average of 600 IR candlepower illumination with an average of 60 seconds burn time and has a range of 300 meters. This is an excellent device for illuminating close-in target areas and can be used as a replacement for conventional visible light illuminators.

(j) *BUDD light.* The BUDD light is a compact near-IR source using a standard 9-volt battery (BA-3090) as its power source. Both the BUDD light and its power source fit in the palm of the hand. The average life span of the battery power for a BUDD light is eight hours of continuous use. The BUDD light comes in two configurations, a continuous beam of IR light and a pulsating light (every two seconds). It is invisible to the naked eye and thermal imagers. The light is clearly visible out to 4 kilometers under optimal conditions when pointing the beam directly at the viewer. The directional characteristics of the beam make it possible to limit observation by an enemy. It also limits the BUDD light's reliability for target identification unless multiple lights are visible to provide all-aspect coverage. This device is most effective for Command and Control purposes. The BUDD light is also very useful for operations at night (Figure 2-6).

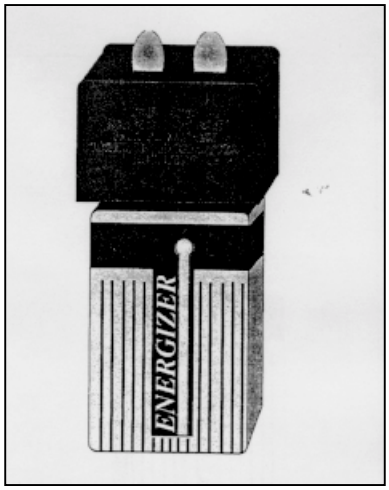


Figure 2-6. BUDD Light.

(k) *PHOENIX IR beacon (NSN: 5855-01-396-8732).* The device is designed to be used with night vision goggles and other NODs. A standard 9-volt battery (BA-3090) powers the light. The Phoenix light is ideal for use when positive identification at night must be made out to 4 kilometers under optimal conditions. It is a device that emits a codeable IR signal, which can be programmed. It flashes any code or sequence up to four seconds long. It is capable of instant code changes done by the individual soldier. The programming of a code can assist in distinguishing one individual, unit, etc., from another. It can be used as an IR torch in the continuous mode. The light is weatherproof and sturdy in design. Other possible uses are to mark LZs, PZs, and main supply routes or to assist in marking passages of lines (Figure 2-7).

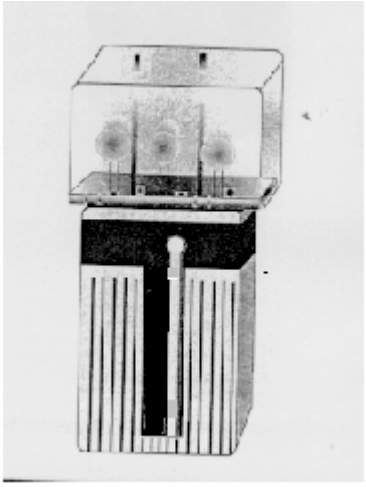


Figure 2-7. PHOENIX IR Beacon.

(2) ***Considerations for use of infrared (IR) lights and NVG.*** With its extensive night vision capability, the U. S. Army owns the night against most opposing forces. As with many other technical advances, when used in urban terrain, NODs may not give the same advantage as they do in open terrain. Leaders have to consider all the factors and make a decision on how to use NODs.

(a) *Advantages of using IR and NVG:*

- Gives an assault team the ability to assault a structure in darkness. This could enhance the surprise (a fundamental of Close Quarters Battle) needed during the assault.

- There is no active light source that is visible to the naked eye that could compromise the assault team's position. This could allow the assault element to move undetected up to and, depending on the situation, through the breach (entry) point.

- A cover could remain on the IR light until the operation is underway, limiting the chance of visually alerting the enemy to the assault teams locations or intentions

(b) *Disadvantages of using IR and NVG:*

- The use of an IR designator/illuminator requires a lot of familiarization and additional training.

- The use of IR and NVG may slow movement inside buildings due to the obstacles present and the lack of depth perception.

- IR illumination is an active light source that can be detected by an enemy with Night Observation Devices (NODs). An active light source can compromise a clearing team's position inside a building or room, making them vulnerable to attack by an undetected assailant outside the building or room.

- NVG and mechanical IR sources are devices that can become inoperable. Firers must have both of these devices operational to be an effective fighter.

- Firers cannot use their iron sights while wearing the NVG. Soldiers would be dependent upon both an aiming/illumination device and the NVG to be effective.

- NVG do not provide a wide field of view and there is a loss of depth perception associated with NVG.

- Early models of the NVG tend to whiteout from muzzle flash or flash bangs.

- If for some reason an assault team member has to remove his NVG, he is very vulnerable during the removal of the equipment and adjustment of his eyesight.

- In the absence of an IR source, NVG require some ambient light, which might not be available inside a building.

- Soldiers may move from a darkened area inside a structure into a white-lighted room, requiring the soldiers to remove their NVG.

- Although target acquisition is possible, target identification is very difficult with IR and NVG inside a building/room.

(3) ***Considerations for use of white light or an active filtered lens.*** Use of white light can be effective, such as during close quarters combat and while searching an objective. As with all active light sources during limited visibility operations, the light must be used tactically to be effective. This means that individuals must control their light source and be aware of its effects at all times. Soldiers can not be allowed to leave the light on constantly and wave it around. Tactical use of the light must be adhered to. Although not covert, white light has several advantages and disadvantages.

(a) *Advantages of using white light or an active filtered lens:*

- When attached to the weapon, the tactical light can be used as a target designator. Where the light is oriented, the muzzle of the weapon is also.

- The equipment is readily available, inexpensive, reliable, and easily maintained.

- Little additional training is required to use the equipment.

- It offers the fastest means of identifying targets and searching a room, enhancing the speed and surprise of the assault element.

- It allows color vision.

- The firer uses his iron sights just as he does in daylight operations.

- After the structure has been dominated and if power is available, the building's light can be turned on so that the assault team(s) can make a thorough search if this does not compromise the unit or make the unit vulnerable to fire from outside the building.

- If white light is used, the assault team(s) will not have to remove their NVG and they won't be vulnerable to NVG whiteout.

- There is less possibility of equipment being inoperable with just one piece of equipment (the tactical light).

- A cover could remain on the tactical light until the operation is under way, limiting the chance of visually alerting the enemy to the assault teams locations or intentions.

(b) *Disadvantages of using white light or an active filtered lens:*

- An active light source can compromise an assault element's position inside a room or building making them vulnerable to attack by an undetected assailant from outside of the building or room.

- There will be a period of time for the eyes to adjust from the use of white light to NODs when the soldier turns off the light. The soldier will be ineffective for a short period of time due to this inability to see properly. This can be overcome with the soldier transitioning to NVG immediately after using his white light.

- A light may be activated too soon and alert the enemy to the clearing team's presence. If this occurs prior to the assault, the entire operation could be compromised.

(c) *Techniques for use of white light or an active filtered lens.*

- Soldiers should utilize the tactical white light as the name implies, tactically. Soldiers should only activate the light when illumination of their line of sight/line of fire is desired. Care must be taken by all soldiers to understand the tactical situation. An example might be when a soldier is responsible for long security of a hallway. He turns his light on and off, as he deems necessary to acquire movement at the far end of the hallway. A fire team is preparing to breach, enter, and clear a room off of the hallway. When the breach is initiated, the soldier on long security should extinguish his light so that he does not silhouette any member of the assault element moving through the breach into the room. Once the room is entered and the assault elements are in their points of domination, then the soldier can turn his light on for security of the hallway again.

- One technique to illuminate a room is to reflect the light from a source off of the ceiling. The reflected light provides enough illumination to allow a search of the room. The amount of light reflected depends upon the color of the ceiling and the amount of dust and smoke present in the room. This technique should not usually be considered in the conduct of close quarters combat because it may silhouette the unit to windows and doors and identify location of the unit.

- Another technique to illuminate a room is to reflect the light from a source off of the center part of the floor. The reflected light will provide enough illumination to allow a search of the room. As in the ceiling technique, this technique can silhouette soldiers in the windows and doors and allow the enemy to acquire them.

(4) ***Position selection.*** Due to the dense environment and the restricted ability to use all available weapon systems, the platoon leader must position all available weapons to obtain maximum effect and mutual supporting fire. This allows for long-range engagements out to the maximum effective ranges, if the situation and ROE permit. For best observation, observers for both direct and indirect fire should be well above street level to adjust fires on the enemy at maximum range. Fires and Final Protective Fires (FPFs) should be preplanned on the most likely approaches to allow for their rapid shifting to threatened areas.

(5) ***Line of sight.*** Due to the nature of the urban environment, there are numerous obstacles inside and outside buildings that limit observation and fields of fire.

b. **Cover and Concealment.** Whether a unit is attacking or defending, its success or failure depends on the ability of the individual soldier to place accurate fire on the enemy with the least exposure to return fire. Consequently, the soldier must immediately seek and properly use fighting positions. The soldier should select and use fighting positions using the protective cover of walls, floors, and ceilings. Soldiers should continually improve fighting positions using materials at hand.

(1) ***Movement.*** During movement, the soldier can reduce his exposure by:

- Using prepared passages through buildings.
- Moving through reconnoitered and marked underground systems.
- Using trenches and sewage systems.
- Using the concealment offered by smoke and darkness to cross open areas.

(2) ***Selecting fighting positions.*** Although mutual support between fighting positions should be maintained, built-up terrain often allows for infiltration routes that the enemy may use to pass between fighting positions. Therefore, the soldier must identify the following:

- Fighting positions that enable him to place suppressive fires on the infiltrating enemy.
- Covered and concealed routes for elements moving between positions (subways and sewers).
- Structures that dominate large areas.
- Areas such as parks, boulevards, rivers, highways, and railroads where antiarmor weapons have fields of fire.
- Firing positions for mortars.
- Command locations that offer cover, concealment, and ease of command and control.
- Protected storage areas for supplies.

(3) ***Specific buildings.*** Buildings that add most to the general plan in both the offense and the defense are chosen for occupation. Mutual support between these

positions is vital to prevent the enemy from maneuvering and outflanking the positions, making them untenable. Buildings chosen for occupation should:

- Offer good protection.
- Have strong floors to keep the structure from collapsing under the weight of debris.
- Be as tall or taller than surrounding buildings.
- Have thick walls.
- Be constructed of nonflammable materials (avoid wood).
- Be strategically located (corner buildings and prominent structures).
- Be adjacent to streets, alleys, vacant lots, and park sites. These buildings usually provide better fields of fire and are more easily tied in with other buildings.

(4) ***Use of smoke.*** The effective use of smoke can provide concealment from the enemy and provide a unit with a tactical advantage.

R26, Improved Obscurants: Leaders should consider the use of improved hand-held obscurants. The M83 smoke grenade is the most current version.

(a) In the offense, soldiers use projected or generated smoke to:

- Mark targets.
- Obscure enemy observation.
- Degrade enemy command, control, and communications.
- Conceal passage of lines, movement to contact, and hasty and deliberate attacks.
- Conceal landing zones (LZs), drop zones (DZs), or pickup zones (PZs). For friendly LZs, DZs, and PZs, smoke is placed to restrict enemy observation without interfering with friendly operations.
- Conceal danger area crossing operations.

- Conceal reduction of obstacle.
- Conceal logistics operations.
- Signal.
- Support deception plans.
- Degrade enemy laser designators, range finders, and weapons.
- Enhance the effectiveness of artillery-delivered minefields by concealing their visual indicators.

(b) In the defense, soldiers use smoke to:

- Obscure enemy observation.
- Disrupt enemy movement and command and control.
- Conceal obstacle emplacement, preparation of battle positions, and movement to alternate positions.
- Conceal reconstitution, holding, and staging areas.
- Conceal main supply route (MSR) activities.
- Signal.
- Mark targets.
- Deceive the enemy as to areas of main effort and battle positions.
- Reduce the effectiveness of enemy directed-energy weapons.
- Enhance air defense by degrading nap-of-earth flight patterns and forcing the enemy to fly higher.
- Silhouette targets.

(c) Some fundamental things that must be done while using smoke as an obscurant on the urban battlefield:

- Continue to use covered and concealed routes and proper movement techniques while using smoke to conceal movement.
- Ensure the smoke's obscurant level is adequate before conducting movement. If necessary, reinforce existing smoke.
- Use unobscured weapons to overwatch.
- Do not let your smoke silhouette your own forces.
- Plan to engage through and/or around the smoke.
- Plan for enemy countermeasures.
- Plan for additional maneuver time under smoke.
- Verify enemy locations before employing smoke.
- Verify the effects of the weather and terrain before employing smoke.

WARNING

Smoke displaces oxygen. Protective masks will not protect soldiers against smoke in confined spaces.

c. **Obstacles.** An urban area itself is an obstacle since it canalizes and impedes an attack. The terrain is not neutral. Combat operations in a built-up area have a slower pace and tempo and an increase in methodical, synchronized missions. Clearing buildings and looking for ambushes and booby traps degrade speed, thus increasing the duration of enemy contact. Likely avenues of approach should be blocked by obstacles and covered by fire. All avenues of approach (surface and subsurface) must be denied. Units must not overlook the use of field-expedient obstacles such as cars, light poles, and so on, or the emplacement of mines. Furniture is an obstacle to be expected inside buildings. Not only does it hinder fields of fire, it constrains movement. Similar to being a physical obstacle to free movement, an urban area is often a obstacle to radio communication since FM radios are line of sight.

R-3, NLOS Radio: Due to the line of sight (LOS) nature of unit TO&E FM radios and the decentralized nature of combat in urban terrain, the use of a NLOS radio for improved communication capabilities should be considered. This type of radio may also be able to provide the user with hands off capabilities, minimum body movement for operation, and remote channel/frequency changing. If fielded to each soldier, it may provide the capability of a unit "intercom".

NOTE: Because of their lack of secure capability, transmissions on these radios must be considered as being monitored by enemy forces, news media, and any entity with a minimum of technology. Transmissions must be characterized by the use of call signs, authentication, and prowords to transmit data.

d. **Key and Decisive Terrain.**

(1) ***Key terrain.*** Key urban terrain is any place where seizure, retention, or control affords a marked advantage to either enemy or friendly forces. Primary examples of key urban terrain are bridges over canals or rivers, building complexes, public utilities or services, or parks. Built-up areas are unusual in that the population of the area itself may be considered key terrain. The identification of key terrain allows the defender to select his defensive positions and assists the defender in determining the enemy's objectives.

(2) ***Decisive terrain.*** Decisive urban terrain is defined as key terrain that has an extraordinary impact on the success of the mission. An example of decisive terrain is a foothold made by a breaching team during an attack of a building. If the entrance is not established, the mission will fail. Another example of decisive terrain might be a stairwell.

e. **Avenues of Approach.** (See FM 34-130, Chap. 2, pg. 2-18.) An avenue of approach is a route of an attacking force of a given size leading to its objective or to key terrain in its path. The evaluation of avenues of approach leads to a recommendation on the best avenues of approach to the command's objective and identification of avenues available to the threat for withdrawal or the movement of reserves. The evaluation also identifies avenues that support the threat's offensive capabilities and avenues that support the movement and commitment of friendly reserves.

f**. Weather Analysis.** Terrain and weather analyses are inseparable. Leaders should include the weather's effects on the urban terrain during terrain analysis. Leaders must consider the military aspects of weather when planning missions.

(1) ***Visibility.*** Light data have special significance during urban operations. Night and periods of reduced visibility favor surprise, infiltration, detailed reconnaissance, attacks across open areas, seizure of defended strongpoints, and reduction of defended obstacles. However, the difficulties of night navigation in restrictive terrain, without reference points and near the enemy, forces reliance on simple maneuver plans with easily recognizable objectives.

(2) ***Winds.*** Wind chill is not as pronounced in built-up areas. However, the configuration of streets, especially in closed-orderly block and high-rise areas, can cause wind canalization. This increases the effects of the wind on streets that parallel the wind direction, while cross-streets remain relatively well protected. Because of these factors, swirling winds occur and the wind speed and direction may constantly change.

(3) ***Precipitation***. Rain or melting snow often floods basements and subway systems. This is especially true when automatic pumping facilities that normally handle rising water levels are deprived of power. Rain also makes storm and other sewer systems hazardous or impassable. Chemical agents are washed into underground systems by precipitation. As a result, these systems contain agent concentrations much higher than surface areas and become contaminated "hot spots." These effects become more pronounced as agents are absorbed by brick or unsealed concrete sewer walls.

(4) ***Cloud cover.*** Cloud cover affects ground operations by limiting illumination and the solar heating of targets. Heavy cloud cover can degrade many target acquisition systems, the use of infrared-guided artillery, and general aviation operations. Many major cities are located along canals or rivers, which often creates a potential for fog in the low-lying areas. Industrial and transportation areas are the most affected by fog due to their proximity to waterways.

(5) ***Temperature and humidity***. Air inversion layers are common over cities, especially cities located in low-lying "bowls" or in river valleys. Inversion layers trap dust, chemical agents, and other pollutants, reducing visibility and often creating a greenhouse effect, which causes a rise in ground and air temperature. The heating of buildings during the winter and the reflection and absorption of summer heat make built-up areas warmer than surrounding open areas during both summer and winter. This difference can be as great as 10 to 20 degrees, and can add to the already high logistics requirements of urban combat. Summer heat, combined with the very physical requirement of urban combat, can cause severe heat exhaustion problems.

2-6. TROOPS AVAILABLE

a. **Considerations.** TO&E units are not necessarily organized for urban combat. American units are used to task organizing at the battalion and company level but rarely at the platoon and squad level. Leaders may have to reorganize units based upon the situation and the assets available to them. Due to the nature of urban combat,

more infantry troops are normally needed than in other combat situations. This is mainly due to the requirement to clear buildings in a given zone or objective. Some forces must be left behind in a position to either observe or defend a building once it has been cleared to prevent enemy forces from repositioning or counterattacking friendly forces. Other factors such as noncombatant control, and the possible increase in the number of friendly casualties must also be considered.

- If a platoon is attacking a building independently (independently here is defined as having no support from a higher or adjacent level), it should be organized with an assault element and a support element. The support element must provide security to cover the platoon's flanks and rear in addition to covering the assault team. BFVs, tanks, and other combat elements in addition to its own internal support element, can support the platoon. (See Chapter 5, para. 5-1, Combined Arms Operations.)

- If one platoon is attacking supported by the rest of the company, security and support may be provided by the other rifle platoons.

- The leaders must also consider the soldiers' stamina. Room clearing techniques are highly physical and will quickly tire a force. Leaders must plan for the relief of forces before they reach the point of exhaustion.

- Additional forces may be needed to control the civilians in the built-up area. These forces must protect civilians, provide first aid, and prevent them from interfering with the tactical plan. In certain cases, provisions must be made to detain some noncombatants.

R-14B, Personal Protection Kit Version B: To prevent spreading contaminant infections, soldiers should use protective gloves and masks to administer first aid to noncombatants and prisoners of war.

R-35, Personnel Restraints: Soldiers can carry and use small and easily portable (in a pocket) restraint devices to control civilian detainees or captured military personnel.

- Fighting in a built-up area has historically resulted in a greater number of friendly casualties than has fighting in other, less restricted environments. The ability to see the enemy is fleeting and confined to very short ranges compared to ordinary field combat. Fratricide can become a serious problem and all leaders must plan for fratricide prevention in detail. Evacuating casualties from the urban environment also presents a challenge and all leaders must planned for it.

- If soldiers from the clearing team are left to secure rooms or buildings as they are cleared, leaders must be prepared to reinforce that team.

b. Equipment**.** Units committed to combat in built-up areas should consider an urban combat package consisting of (but not limited to):

(1) ***Special equipment***:

R-3, NLOS Radio: Due to the line of sight (LOS) nature of unit TO&E FM radios and the decentralized nature of combat in urban terrain, the use of a NLOS radio for improved communication capabilities should be considered. This type of radio may also be able to provide the user with hands off capabilities, minimum body movement for operation, and remote channel/frequency changing. If fielded to each soldier, it may provide the capability of a unit "intercom".

NOTE: Because of their lack of secure capability, transmissions on these radios must be considered as being monitored by enemy forces, news media, and any entity with a minimum of technology. Transmissions must be characterized by the use of call signs, authentication, and prowords to transmit data.

R-14B, Personal Protection Kit Version B: To prevent spreading contaminant infections, soldiers should use protective gloves and masks to administer first aid to noncombatants and prisoners of war.

R-35, Personnel Restraints: Soldiers can carry and use small and easily portable (in a pocket) restraint devices to control civilian detainees or captured military personnel.

- collapsible pole ladders
- rope ladders

R-28, Get on Top of Building: Soldiers should consider the use of devices that allow them to assault the top of buildings without climbing an interior stairwell.

R-11, Clearly ID Friendlies: To prevent the possibility of fratricide, soldiers should wear and/or carry means of identification that clearly distinguish them to other friendlies while not signaling them to the enemy.

- grappling hooks
- rope and snaplinks
- construction material and sandbags
- shotguns for ballistic breaching

R-5A, Intelligence Collection/Dissemination: Leaders should consider the use of an Unmanned Aerial Vehicle (UAV) for overflight mapping and reconnaissance of an objective area. This will allow reconnaissance of the objective area without the enemy learning the strength, location, or intentions of the main element.

R-5B, Intelligence Collection/Dissemination: Leaders should consider the use of an Unmanned Ground Vehicle (UGV) for reconnaissance of the inside of tunnel systems, buildings, and other objective areas. This will allow reconnaissance of the objective area without the enemy learning the strength, location, or intentions of the main element.

- breaching tools

R-30A, Breaching Devices: When explosives cannot be used or are not appropriate or available for breaching, the assault team should consider the use of breaching devices such as the Hooligan's Tool, etc, to force open doors, windows, and to create mouseholes.

- axes
- firefighting equipment
- saws
- hammer and nails
- bolt cutters
- wire cutters

R-33, Detect Sniper: The location of the sniper may be determined by the use of an acoustic-based detection system.

R-21, Hands-Free Sling: Consider the use of a hands-free sling for the M-16 series, M4 , and the M-249 which allows soldiers to remove one or both hand from the weapon and still have the weapon pointed towards the enemy and easy to get to.

R-12, Personal Protection Equipment: To reduce the high rates of injury to elbows and knees due to hard surfaces encountered in built up areas, all soldiers are encouraged to wear Personal Protection Equipment.

CAUTION

Prolonged use of elbow and knee protection may cause discomfort to soldiers.

(2) ***Munitions***:

R-24, Frangible Ammunition: In some instances, to prevent the possibility of fratricide or injury to friendly inhabitants, consider the use of 5.56-mm and 7.62-mm Controlled Penetration Ammunition (CPA) "Soft Round" which will penetrate human bodies/walls and then stop either in the body or in the wall.

WARNING

Because frangible ammunition disintegrates upon impact with any surface harder than the projectile itself, safety glasses should be worn to protect eyes from fragments.

NOTE: The use of frangible ammunition will prevent firing through objects (furniture, walls, etc.). This could place the unit at a severe disadvantage against an enemy not so equipped.

- All types of grenades will be required in large quantities. Fragmentation grenades may not be the right tool for use in an urban environment except under certain conditions. Other types of grenades will also be required.

R-34, Stun Grenade: To prevent the possibility of fratricide or injury to friendly inhabitants, soldiers should consider the use of nonlethal stun grenades rather than the fragmentation grenade.

- M72 LAWs still exist in war stocks in limited quantities; the US Navy is still purchasing them. These and the Marines' SMAW and the Rangers' Carl Gustav (RAAWS) are better suited for MOUT than the AT-4.

- The M202 Flash still exists in war stocks. Flame weapons have always proved invaluable in combat in cities.

R-30B, Rifle Launched Entry Munition: The assault team should consider the use of breaching devices such as the rifle launched entry munition to force open doors, windows, and to create mouseholes.

(3) Explosives and demolitions:

R-27, Man Size Hole: Leaders should consider the use of the Beast or Explosive Cutting Tape (ECT) for creating man sized breaches both on the exterior and interior of buildings allowing soldiers access for assaulting and movement in and through buildings.

2-7. TIME

a. **Offensive Operations.** Offensive operations in built-up areas may have a slower pace and tempo than do operations in less restrictive terrain. The following issues must be considered when analyzing time available for an attack in urban terrain:

- Due to the dense environment of urban terrain, more time is required for clearing buildings, blocks, or axes of advance than for offensive operations in other, less restrictive terrain.

- Troops tire more quickly because of stress and additional physical exertion related to clearing. The pace of their operations will slow down even more as they tire.

- More time must be allowed for thorough reconnaissance and rehearsals. This saves time in the execution of the platoon leader's plan.

R-5A, Intelligence Collection/Dissemination: Leaders should consider the use of an Unmanned Aerial Vehicle (UAV) for overflight mapping and reconnaissance of an objective area. This will allow reconnaissance of the objective area without the enemy learning the strength, location, or intentions of the main element.

R-5B, Intelligence Collection/Dissemination: Leaders should consider the use of an Unmanned Ground Vehicle (UGV) for reconnaissance of the inside of tunnel systems, buildings, and other objective areas. This will allow reconnaissance of the objective area without the enemy learning the strength, location, or intentions of the main element.

- Leaders need to consider tactical patience and practice it in training. Although there is a need for continued pressure on the enemy, actions need to take place at the right time and in the proper sequence.

b. **Defensive Operations.** The platoon leader must organize and establish priorities of work, depending upon the time available. Time available to prepare the defense could be the most critical factor. If enough time is not available, buildings that require extensive preparation should not be used. Conversely, buildings located in less desirable areas that require little improvement could probably become the centers of defense. In establishing priorities of work, platoon leaders should consider the following:

(1) ***Sectors of fire.*** Each weapon should be assigned a primary sector of fire to cover enemy approaches. Alternate positions that overwatch the primary sector should also be selected. Any underground system not used by the defender that could provide enemy access to the position must be blocked.

(2) ***Rooftops.*** Positions in flat-roofed buildings require obstacles that restrict helicopter landings. Any structure on the outside of a building that could assist scaling the buildings to gain access to upper floors, or to the rooftop, should be removed or blocked.

(3) ***Routes.*** Routes are required that permit defending forces to move within the building to engage enemy forces from any direction. Escape routes should also be planned and constructed to permit rapid evacuation of a room or the building. Rehearsals should be conducted so that everyone becomes familiar with the routes. Early selection and marking of routes adds to the defender's advantages.

(4) ***Establishing fighting positions.*** Many tasks can be accomplished at the same time. Leaders should consider the following factors when establishing fighting positions.

- Security.

- Protection.

- Dispersion.
- Concealment.
- Fields of fire.
- Covered routes.
- Observation.
- Fire hazards.
- Communications.
- Rubbling.
- Assignment of sectors of responsibility.

(5) ***Emplacement of obstacles and mines.*** To save time and resources in preparing the defense, leaders must emphasize using all available materials such as automobiles, railcars, and rubble to create obstacles.

(6) ***Improvement of fighting positions.*** When time permits, all positions, to include supplementary and alternate positions, should be reinforced with sandbags and provided with overhead cover. Timely and accurate support from attached engineers helps in this effort.

2-8. SUBTERRANEAN OPERATIONS

In built-up areas, the platoon leader must consider features constructed underground. These include sunken garages, underground passages, subway lines, utility tunnels, sewers and storm drains. Many of these features will accommodate the movement of large numbers of troops and provide another dimension to the battlefield. Even in smaller towns, sewers and storm drains permit troops to move beneath the main fighting area, giving both attacker and defender the ability to move unseen. A detailed knowledge of the nature and location of the underground facilities is potentially of great value to both the attacker and the defender. The maximum use of these facilities may well prove to be a decisive element in the urban battle.

a. **Characteristics.** The passageways provide tight fields of fire. They amplify the effect of munitions such as grenades. If the tunnels are to be blocked, early warning devices and obstacles should be placed out and the entry points should be secured. If tunnels are not to be used, entry points should be sealed. Manhole covers can be blocked with heavy weights or can be tack-welded if the capability is available. Tunnels afford the attacker little cover and concealment except for the darkness and any man-

made barriers. Obstacles at intersections in the tunnels set up excellent ambush sites and turn the subterranean passages into a deadly maze. These obstacles can be quickly created using chunks of rubble, furniture, and parts of abandoned vehicles interspersed with command-detonated explosives or mines. A thorough reconnaissance of the subterranean or sewer system must be made first. As opposed to storm systems, sewers contain various types of contamination. Careful consideration should be given before entering such systems. To be effective, obstacles must be located at critical intersections in the passage network so that they trap attackers in a kill zone but allow defenders freedom of movement.

DANGER

LARGE AMOUNTS OF ANY TYPE OF GAS CAN DISPLACE THE OXYGEN IN AN ENCLOSED SPACE. THIS CONDITION RENDERS PROTECTIVE MASKS USELESS AND ENDANGERS THE LIVES OF ANYONE OPERATING IN THIS TYPE OF ENVIRONMENT. RESPIRATORS THAT HAVE THEIR OWN OXYGEN SUPPLY ARE THE ONLY ACCEPTABLE SOLUTION WHEN OPERATING IN THIS TYPE OF ENVIRONMENT. COCKROACHES OR RATS LIVING IN A SUBTERRANEAN ENVIRONMENT INDICATE THAT THERE IS AN ADEQUATE AMOUNT OF OXYGEN PRESENT. SMOKE GRENADES MAY DISPLACE OXYGEN IN CONFINED SPACES.

THE PRESENCE OF FLAMMABLE GASES CAN CAUSE A MAJOR EXPLOSION WITH THE SLIGHTEST SPARK. THE FIRING OF A WEAPON COULD CAUSE AN EXPLOSION.

SOME GASES CANNOT BE DETECTED BY SMELL. THE ONLY SURE WAY TO PROTECT SOLDIERS FROM HARMFUL GASES IS TO VENTILATE THE PASSAGEWAY BY FORCING FRESH AIR INTO THE SITE. REMOVING A MANHOLE COVER DOES NOT ADEQUATELY VENTILATE A SUBTERRANEAN PASSAGEWAY.

b. **Tactical Value.** The tactical values of underground facilities are:

(1) ***Offensive operations.*** Underground passages provide the attacker with covered and concealed routes into and through built-up areas. This enables him to launch his attack along routes that lead into the city while infiltrating smaller forces underground. The attack along an underground route could easily become the main attack. It could force the defender to fight on two levels, stretching his resources.

(2) ***Defensive operations.*** Subterranean passages are useful to the defender only to the extent that the attacker can be denied their use. The defender has an advantage in that, given the confining, dark environment of these passages, a small

group of determined soldiers in a prepared position can defeat a numerically superior force.

c. **Use of Weapons.** The confined space amplifies the sound of weapons firing to a dangerous level. Hearing protection is critical to allow soldiers to continue to function. The overpressure from grenades, mines, and booby traps exploding in a sewer or tunnel can have an adverse effect on troops. Also, gases found in sewers can be flammable, making this a double-edged weapon for both attackers and defenders. For these reasons, small-arms weapons should be employed as the main weapon system in tunnels and sewers. Friendly personnel should be outside tunnels or out of range of the effects when mines or demolitions are detonated.

d. **Local Knowledge/Navigation.** Prior to conducting an urban operation and especially a tunnel patrol, it is imperative that up-to-date local town plans and sewer maps are acquired if at all possible. Any locals with knowledge of underground routes must be questioned in detail. Without this kind of information, you must map as you go. Once below ground, pacing must be used as a guide to location.

R-5B, Intelligence Collection/Dissemination: Leaders should consider the use of an Unmanned Ground Vehicle (UGV) for reconnaissance of the inside of tunnel systems, buildings, and other objective areas. This will allow reconnaissance of the objective area without the enemy learning the strength, location, or intentions of the main element.

e. **Threat.** The following threats must be considered for both offensive and defensive operations in subterranean passageways:

(1) ***Enemy presence in tunnels.*** It is likely that the enemy will want to use tunnels and they may have the advantage of marked routes and detailed reconnaissance. They may have the element of surprise, being able to select ambush positions and withdrawal routes. A defended position in an underground facility could be very effective in countering enemy subterranean operations. It should be well protected, channeling the enemy into a killing zone to inflict maximum casualties.

(2) ***Booby-traps.*** When moving through tunnels, great care must be taken to avoid booby traps. These will normally be deployed near junctions and will often be operated by trip wires. Water filled tunnels provide excellent camouflage for AP mines and booby traps scattered on likely routes. If moving without light, the lead man needs to feel for wires using a tripwire feeler (Figure 2-8). He should also avoid walking in water if possible.

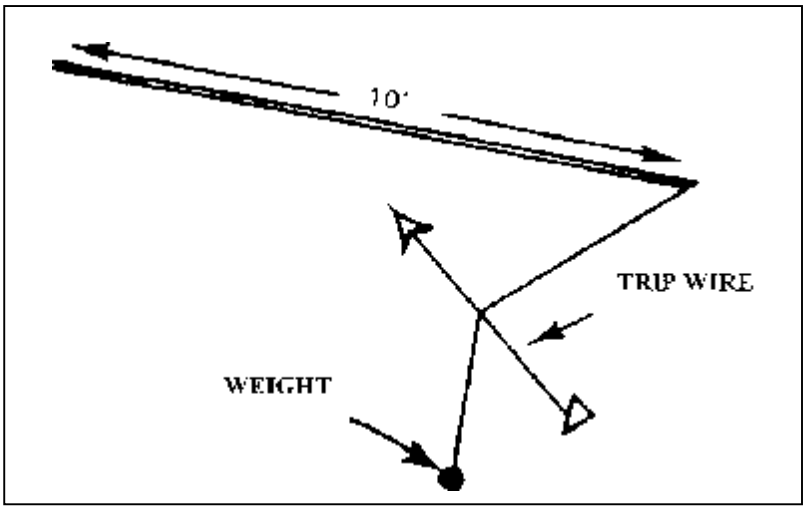


Figure 2-8. Tripwire feeler.

(3) ***Natural problems.*** With the battle above continuing, and the possibility of artillery barrages and the use of demolitions, there is a strong possibility of flooding and a cave in. It is essential to identify escape routes.

f. **Problems Involved with Tunnel Fighting.** There are several factors peculiar to tunnel fighting:

(1) ***Darkness.*** In the close confines of a tunnel, passive equipment such as NVGs, which require ambient light, are of little use. Therefore IR and/or white light are required. The following will be useful:

- NVG with IR source.
- IR filtered lights.
- White light flashlights.

(2) ***Vision aids.*** Aids to vision are:

- Mirrors. Mirrors can be used to look around corners and monitor major junctions for a defended position.
- Bright Lamps. Lamps may be necessary when constructing a defended position. Their use gives soldiers a sense of security.

(3) ***Use of grenades.*** Concussion and fragmentation grenades will produce a large shock wave and could, if used excessively, collapse the tunnel. The following alternatives should be considered:

- WP Grenades. Careful consideration must be given prior to the use of the white phosphorus grenade inside an enclosed space as the white phosphorus spreads, ignites, burns in the air, and causes extreme burns to the body. Any available oxygen in such an enclosed space will be rapidly consumed. These grenades should be used with care and extreme caution, as no immediate follow up is possible.

- Smoke Grenades. Smoke will linger in a tunnel for a long period of time. It will certainly confuse the enemy and, in dense concentrations, it can displace oxygen to the point where it can constitute a danger. This is a double-edged weapon. Protective masks may be of little use against smoke grenades.

- Flash-bang Grenades. Flash-bang grenades may be used in confined spaces to produce a limited concussion and distraction effect without causing casualties to friendly forces.

R-34, Stun Grenade: To prevent the possibility of fratricide or injury to friendly inhabitants, soldiers should consider the use of nonlethal stun grenades rather than the fragmentation grenade.

(4) ***Inability to maneuver.*** As cover is limited inside tunnels, it is advisable to wear all combat body armors. Other considerations are:

- Ropes. Ropes can be used not only to ease movement through tunnels, but also to attach together members of the operation. This enables team members to be easily retrieved. This safety line should be tied to team members leaving 5-meter intervals between them.

- Wire Mesh. Attaching wire mesh to the souls of combat boots will prevent slipping and enhance traction in some situations.

(5) ***Extreme noise during engagements.*** All personnel below ground must wear at least one set of hearing protection to avoid being stunned by blast and noise.

(6) ***Degradation of radio communications.*** Communications inside the tunnels will be severely degraded. Several methods to overcome this are:

- Use of messengers.

- Increased power setting on radios.

- Land Line and Field Telephone.

R-3, NLOS Radio: Due to the line of sight (LOS) nature of unit TO&E FM radios and the decentralized nature of combat in urban terrain, the use of a NLOS radio for improved communication capabilities should be considered. This type of radio may also be able to provide the user with hands off capabilities, minimum body movement for operation, and remote channel/frequency changing. If fielded to each soldier, it may provide the capability of a unit "intercom".

NOTE: Because of their lack of secure capability, transmissions on these radios must be considered as being monitored by enemy forces, news media, and any entity with a minimum of technology. Transmissions must be characterized by the use of call signs, authentication, and prowords to transmit data.

(7) ***Limitation of firepower.*** The limited use of available firepower will favor the defender. Positions should be able to hold off a much larger force. Weapons best suited to the defender are:

- Flame-throwers (currently not in service in the US inventory).

- Shotguns.

(8) ***Chemical hazard.*** A constant concern for troops conducting underground patrols is chemical defense. Enemy chemical warfare (CW) agents used in tunnels may be encountered in dense concentrations, with little chance of it dispersion (no wind). A Chemical Agent Alarm System, carried by the point man, will provide instantaneous warning of the presence of CW agents. M8 and M9 Detection Papers should also be used to test for the presence of chemical agents. Noxious gases from decomposing sewage can also pose a threat because they displace oxygen and because they are not filtered by the soldier's protective mask. Unit leaders must be constantly alert for the physical signs of the presence and symptoms of gases on soldiers.

(9) ***Psychological considerations.*** Combat operations in subterranean passages are much like night combat operations. The psychological factors of night operations reduce confidence, cause fear, and increase a feeling of isolation. This feeling of isolation is further magnified by the tight confines of the tunnels. As was discovered during tunnel operations in the Viet Nam war, many personnel are unsuited for operations below ground. The layout of tunnels could require greater dispersion between positions, further enhancing the feeling of isolation.

(a) *Enforce measures.* Leaders must enforce measures to help dispel the feelings of fear and isolation experienced when operating in tunnels. These measures include leadership training, physical and mental fitness, sleep discipline, and stress management.

(b) *Communications.* Leaders maintain communication with soldiers manning positions in the tunnels either by personal visits or by field telephone. Communications inform leaders of the tactical situation as well as the mental state of their soldiers. Training during combat operations is limited; however, soldiers manning positions below ground should be given as much information as possible on the organization of the tunnels and the importance of the mission. They should be briefed on contingency plans and alternate positions should their primary positions become untenable. All members both above and below ground (Figure 2-9) must know recognition signals.

Figure 2-9. Recognition signals.

R-3, NLOS Radio: Due to the line of sight (LOS) nature of unit TO&E FM radios and the decentralized nature of combat in urban terrain, the use of a NLOS radio for improved communication capabilities should be considered. This type of radio may also be able to provide the user with hands off capabilities, minimum body movement for operation, and remote channel/frequency changing. If fielded to each soldier, it may provide the capability of a unit "intercom".

NOTE: Because of their lack of secure capability, transmissions on these radios must be considered as being monitored by enemy forces, news media, and any entity with a minimum of technology. Transmissions must be characterized by the use of call signs, authentication, and prowords to transmit data.

(c) *Stress.* Physical and mental fitness can be maintained by periodically rotating soldiers out of tunnels so they can stand and walk in fresh air and sunlight. Stress management is also a factor of operations in tunnels. Historically, combat in built-up areas has been one of the most stressful forms of combat. Continuous darkness and restricted maneuver space cause more stress to soldiers than street fighting.

2-9. TARGET ACQUISITION

Built-up areas provide unique challenges to units. Buildings mask movement and the effects of direct and indirect fires. The rubble from destroyed buildings, along with the buildings themselves, provides cover and concealment for attackers and defenders, making target acquisition difficult. Built-up areas usually favor the defender because of the advantages achieved. This makes target acquisition extremely important since the side that fires first may win the engagement. Target acquisition must be continuous, whether halted or moving. The six steps of target acquisition -- search, detection, location, identification, classification, and confirmation -- are no different in an urban environment than anywhere else.

a. **Search.** Use of all senses during the search step enhances the detection capabilities of all soldiers on the urban battlefield. The techniques of patrolling and using observation posts apply in urban as well as in wooded or more open terrain. These techniques enable units to search for and locate the enemy. Soldiers searching the urban battlefield for targets should employ target acquisition devices. These devices can include binoculars, image intensification devices, thermal sights, ground surveillance radar (GSR), remote sensors (REMs), platoon early warning systems (PEWS), and field expedient early warning devices. Several types of devices should be used since no single device can meet every need of a unit.

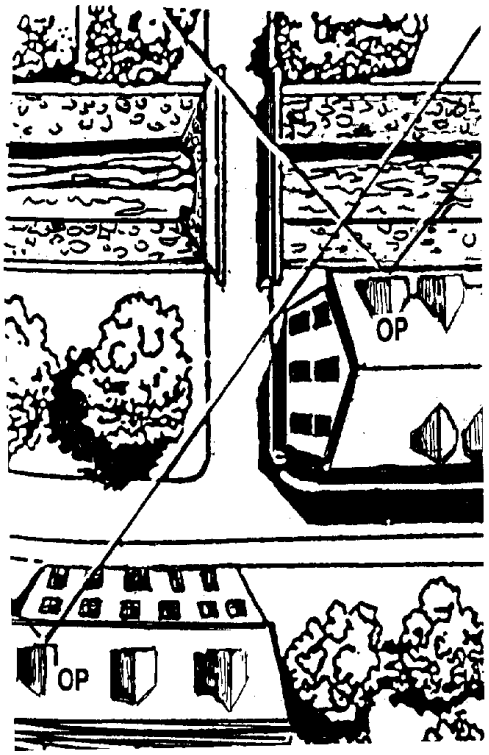
(1) ***Observation.*** Observation duties must be clearly given to squad members to ensure 360 degrees and three-dimensional security as they move. This security

continues at the halt. Soldiers soon recognize the sights, smells, sounds, etc. associated with their urban battlefield and can soon distinguish targets.

(2) ***Movement.*** Stealth should be used when moving in built-up areas since little distance separates attackers and defenders. Hand and arm signals should be used until contact is made. The unit should stop periodically to look and listen. Routes should be carefully chosen so that buildings and piles of rubble can be used to mask the unit's movement.

(3) ***Movement techniques.*** When a unit is moving and enemy contact is likely, the unit must use a movement technique with an over-watching element. This principle applies in built-up areas as it does in other kinds of terrain except that in urban terrain, the over-watching element must observe both the upper floors of buildings and street level.

(4) ***Observation posts (OPs).*** The military aspects of urban terrain must be considered in selecting observation positions. OPs can be positioned in the upper floors of buildings, giving soldiers a better vantage point than at street level. Leaders should not select obvious positions, such as water towers or church steeples that attract the enemy's attention (Figure 2-10).



A squad leader is given the general location of the OP by the platoon leader. The squad leader selects the exact position.

Leaders look for positions that--

- Have good observation of the desired area or sector (ideally, an OP has a field of observation which overlaps those adjacent OPs).
- Have cover and concealment (good observation of the sector may require the OP to accept less cover and concealment and require troops to selectively clear fields of observation).

Figure 2-10. Selection of OP location.

b. **Detection.** Personnel, weapons, and vehicles have distinguishing signatures. Soldiers must recognize signatures so they can acquire and identify targets. This is extremely important in the urban battlefield, where one or more senses can be degraded. Imagine operating in a built-up area where smoke is used as an obscurant. Not only will the soldier not be able to see through the smoke with the naked eye, his sense of smell and his breathing will be affected also. Some considerations are:

- Soldiers must look for targets in areas where they are most likely to be employed.

- Odors from diesel fuel, gasoline, cooking food, burning tobacco, after-shave lotion, and so on reveal enemy and friendly locations.

- Running engines, vehicles, and soldiers moving through rubble-covered streets can be heard for great distances. Vehicles driven in built-up areas produce more noise than ones moving through an open field do. Soldiers moving through rubble on a street or in the halls of a damaged building create more noise than in a wooded area.

- Sounds and smells can aid in acquiring targets at night since they transmit better in the cooler, damper night air.

- Dust and noise created by the firing of a tank main gun can be seen and smelled.

- Irregularly shaped objects that do not conform to the surrounding area stand out.

- Abnormal reflections or flashes from movement of optics or metal can be seen.

- It can be difficult to determine the direction of weapons signatures but it can be done with practice.

R-33, Detect Sniper: The location of the sniper may be determined by the use of an acoustic-based detection system.

- Voices can often be heard at long distances, with the sound reflecting off of structures.

c. **Location.** In an urban environment, determining the target location can be difficult. The cover and concealment provided by buildings and rubble can provide the enemy with an advantage that is not overcome easily. After the enemy is detected or contact is made, soldiers must mentally see the situation from the enemy's viewpoint. This will help the soldier determine where the likely enemy position is. A that point, the suspected enemy position should be suppressed, consistent with the ROE.

d. **Identification.** Being able to identify targets as quickly as possible after they are detected gives soldiers the advantage during MOUT. As a minimum, identification must determine if the target is friend, foe, or, more commonplace on the urban battlefield, noncombatant. Correct identification is the key to preventing fratricide. Soldiers must know and understand the ROE. Soldiers must know what to engage and what not to engage.

e. **Classification.** To determine an appropriate method of dealing with a target, the soldier must determine the danger it represents. It requires quick decisions as targets are observed and occurs virtually simultaneously with identification. Situational awareness is vitally important.

f. **Confirmation.** This rapid verification of the initial identification and classification of the target is the final step of target acquisition. Identification, classification, and confirmation are done simultaneously.

2-10. WEAPONS CONSIDERATIONS

The characteristics and nature of combat in built-up areas affect the results and employment of weapons. Leaders at all levels must consider the following factors in various combinations when choosing their weapons:

WARNING

Troops' safety from backblast or fragmentation effects must be considered.

a. Hard, smooth, flat surfaces are characteristic of urban targets. Rarely do rounds impact perpendicular to these flat surfaces, but rather, at some angle of obliquity. This reduces the effect of a round and increases the threat of ricochets. The tendency of rounds to strike glancing blows against hard surfaces means that up to 25 percent of impact-fused explosive rounds may not detonate when fired onto rubble areas.

R-24, Frangible Ammunition: In some instances, to prevent the possibility of fratricide or injury to friendly inhabitants, consider the use of 5.56-mm and 7.62-mm Controlled Penetration Ammunition (CPA) "Soft Round" which will penetrate human bodies/walls and then stop either in the body or in the wall.

WARNING

Because frangible ammunition disintegrates upon impact with any surface harder than the projectile itself, safety glasses should be worn to protect eyes from fragments.

NOTE: The use of frangible ammunition will prevent firing through objects (furniture, walls, etc.). This could place the unit at a severe disadvantage against an enemy not so equipped.

b. Engagement ranges are close. Studies and historical analyses have shown that only 5 percent of all targets are more than 100 meters away. About 90 percent of all targets are located 50 meters or less from the identifying soldier. Few personnel targets will be visible beyond 50 meters and they usually occur at 35 meters or less.

c. Engagement times are short. Enemy personnel present only fleeting targets.

d. Depression and elevation limits for some weapons create dead space. Tall buildings form deep canyons that are often safe from indirect fires. Some weapons can fire rounds to ricochet behind cover and inflict casualties. Target engagement from oblique angles, both horizontal and vertical, demands superior marksmanship skills.

e. Smoke from burning buildings, dust from explosions, shadows from tall buildings, and the lack of light penetrating inner rooms all combine to reduce visibility and to increase a sense of isolation. Added to this is the masking of fires caused by rubble and man-made structures. Targets, even those at close range, tend to be indistinct.

f. Urban fighting can become confused mêlées with several small units attacking on converging axes. The risks from friendly fires, ricochets, and fratricide must be considered during the planning phase of operations, and control measures must be adjusted to lower these risks. Soldiers and leaders must maintain a sense of situational awareness.

R-8, Remote Marking Munitions: Consideration should be given to the use of M203 TPT round as a remote marking munition to facilitate fire control and distribution.

WARNING

The M203 TPT round has a metal projectile body that can ricochet and cause injuries.

g. The soldier and target may be inside or outside buildings, or they may both be inside the same or separate buildings. The enclosed nature of combat in built-up areas means that the weapon's effects, such as muzzle blast and backblast, must be considered as well as the round's impact on the target.

h. Usually the man-made structure must be attacked before enemy personnel inside are attacked. Therefore, weapons and demolitions will often be chosen for employment based on their effects against masonry and concrete rather than against enemy personnel. (See Chapter 2, para. 2-14, Structures.)

R-27, Man Size Hole: Leaders should consider the use of the Beast or Explosive Cutting Tape (ECT) for creating man-sized breaches both on the exterior and interior of buildings, allowing soldiers access for assaulting and movement in and through buildings.

i. Modern engineering and design improvements mean that most large buildings constructed since World War II are resilient to the blast effects of bomb and artillery attack. Even though modern buildings may burn easily, they often retain their structural integrity and remain standing. Once high-rise buildings burn out, they are still useful to the military and are almost impossible to further damage. A large structure can take 24 to 48 hours to burn out and get cool enough for soldiers to enter.

2-11. WEAPONS PENETRATION

a. **Small Arms Weapon Penetration.** The penetration that can be achieved with a 5.56-mm round depends on the range to the target and the type of material being fired against. At close range, weapons do not perform the same. Single 5.56-mm rounds are not effective against structural materials (as opposed to partitions) when fired at close range. The closer the range, the less the penetration. Even with reduced penetration at short ranges, interior walls made of thin wood paneling or plaster are no protection against 5.56-mm rounds. Common office furniture such as desks and chairs cannot stop these rounds, but a layer of books 18 to 24 inches thick can. Armor-

piercing rounds are slightly more effective than ball ammunition in penetrating urban targets at all ranges. They are more likely to ricochet than ball ammunition, especially when the target presents a high degree of obliquity.

R-24, Frangible Ammunition: In some instances, to prevent the possibility of fratricide or injury to friendly inhabitants, consider the use of 5.56-mm and 7.62-mm Controlled Penetration Ammunition (CPA) "Soft Round" which will penetrate human bodies/walls and then stop either in the body or in the wall.

WARNING

Because frangible ammunition disintegrates upon impact with any surface harder than the projectile itself, safety glasses should be worn to protect eyes from fragments.

NOTE: The use of frangible ammunition will prevent firing through objects (furniture, walls, etc.). This could place the unit at a severe disadvantage against an enemy not so equipped.

The following common barriers in built-up areas stop a 5.56-mm round fired at less than 50 meters (Table 2-1):

- One thickness of sandbags.
- A 2-inch concrete wall (not reinforced).
- A 55-gallon drum filled with water or sand.
- Small ammunition can filled with sand.
- A cinder block filled with sand (block will probably shatter).
- A brick veneer.
- A plate glass windowpane at a 45-degree angle (glass fragments will be thrown behind the glass).
- A car body (5.56-mm ammunition penetrates but normally will not exit).

TYPE	PENETRATION	ROUNDS REQUIRED
8-inch reinforced concrete	Initial Loophole	35 250
14-inch triple brick	Initial Loophole	90 160
12-inch cinder block with single-brick veneer	Loophole Breach hole	60 250
9-inch double brick	Initial Loophole	70 120
16-inch tree trunk or log wall	Initial*	1 to 3
12-inch cinder block (filled with sand)	Loophole	35
24-inch double sandbag wall	Initial*	220
3/8-inch mild steel door	Initial*	1

*Penetration only, no loophole.

Table 2-1. Structure penetration capabilities of the 5.56-mm round against typical urban targets (range 25 to 100 meters).

b. **Machine Gun Penetration.** The ability of the 7.62-mm and .50-caliber rounds to penetrate is also affected by the range to the target and type of material fired against. The 7.62-mm round is affected less by close ranges than the 5.56mm (Tables 2-2, 2-3, and 2-4); the .50-caliber's penetration is reduced least of all.

RANGE (meters)	PINE BOARD (inches)	DRY LOOSE SAND (inches)	CINDER BLOCK (inches)	CONCRETE (inches)
25	13	5	8	2
100	18	4.5	10	2
200	41	7	8	2

Table 2-2. Penetration capabilities of a single 7.62-mm (ball) round.

THICKNESS (meters)	100 METER (rounds)	200 METERS (rounds)
2	300	1,200
3	450	1,800
4	600	2,400

Table 2-3. Number of 7.62-mm rounds needed to penetrate a reinforced concrete wall at a 25-degree obliquity.

- At 50 meters, the 7.62-mm ball round cannot penetrate a single layer of sandbags. It can penetrate a single layer at 200 meters, but not a double layer. The armor-piercing round does only slightly better against sandbags. It cannot penetrate a double layer but can penetrate up to 10 inches at 600 meters.

- The penetration of the 7.62-mm round is best at 600 meters but most urban targets are closer. The longest effective range is usually 200 meters or less.

R-24, Frangible Ammunition: In some instances, to prevent the possibility of fratricide or injury to friendly inhabitants, consider the use of 5.56-mm and 7.62-mm Controlled Penetration Ammunition (CPA) "Soft Round" which will penetrate human bodies/walls and then stop either in the body or in the wall.

WARNING

Because frangible ammunition disintegrates upon impact with any surface harder than the projectile itself, safety glasses should be worn to protect eyes from fragments.

NOTE: The use of frangible ammunition will prevent firing through objects (furniture, walls, etc.). This could place the unit at a severe disadvantage against an enemy not so equipped.

TYPE	THICKNESS Inches)	HOLE DIAMETER (inches)	ROUNDS REQUIRED
Reinforced concrete	8	7	100
Triple brick wall	14	7	170
Concrete block with single brick veneer	12	6 and 24	30 and 200
Cinder block (filled)	12	*	18
Double brick wall	9	*	45
Double sandbag wall	24	*	110
Log wall	16	*	1
Mild steel door	3/8	*	1

*Penetration only, no loophole.

Table 2-4. Structure penetrating capabilities of 7.62-mm round (NATO ball) against typical urban targets (range 25 meters).

- The .50-caliber round is also optimized for penetration at long ranges (about 800 meters). For hard targets, obliquity and range affect .50-caliber penetration. Both armor piercing and ball ammunition penetrate 14 inches of sand or 28 inches of packed earth at 200 meters if the rounds impact perpendicularly to the flat face of the target (Table 2-5).

TYPE	THICKNESS (inches)	HOLE DIAMETERS (inches)	ROUNDS REQUIRED
Reinforced concrete	10	12	50
		24	100
	18	7	140
Triple brick wall	12	8	15
		26	50
Concrete block with single brick veneer	12	10	25
		33	45
Armor plate	1	*	1
Double sandbag wall	24	*	5
Log wall	16	*	1

*Penetration only, no loophole

Table 2-5. Structure penetrating capabilities of .50-caliber ball against typical urban targets (range 35 meters).

c. **40-mm Weapon Penetration**. The 40-mm HEDP (High Explosive Dual Purpose) grenade has a small shaped charge that penetrates better than the HE round. It also has a thin wire wrapping that bursts into a dense fragmentation pattern, creating casualties out to 5 meters. Because it explodes on contact, a 40-mm round achieves the same penetration regardless of range. Table 2-6 explains the penetration capabilities of the HEDP round.

TARGET	PENETRATION (inches)
Sandbags	20 (double layer)
Sand-filled cinder block	16
Pine logs	12
Armor plate	2

Table 2-6. Penetration capabilities of the 40-mm HEDP round.

(1) ***Interior penetration.*** If projected into an interior room, the 40-mm HEDP can penetrate all interior partition-type walls. It splinters plywood and plaster walls, making a hole large enough to fire a rifle through. Rather than fire the 40-mm HEDP at

a wall, it is better to have HEDP rounds pass into a room and explode on a far wall, even though much of the round's energy is wasted penetrating the back wall. The fragmentation produced in the room causes more casualties than the high-explosive jet formed by the shaped charge. The fragments from the 40-mm HEDP round do not reliably penetrate interior walls. They are also stopped by office furniture, sandbags, helmets, and protective vests (flak jackets). The M203 dual-purpose weapon has the inherent accuracy to place grenades into windows at 125 meters and bunker apertures at 50 meters. These ranges are significantly reduced as the angle of obliquity increases. Combat experience shows that M203 gunners cannot consistently hit windows at 50 meters when forced to aim and fire quickly unless they are given the training time and resources to prepare for this task.

(2) ***Exterior penetration.*** The M203 cannot reasonably deliver the rounds needed to breach a typical exterior wall. The MK 19 can concentrate its fire and achieve wall penetration. Firing from a tripod, using a locked down traversing and elevating mechanism, is best for this role. Brick, cinder block, and concrete can be breached using the MK 19; individual HEDP rounds can penetrate 6 to 8 inches of brick. The only material that has proven to be resistant to concentrated 40-mm fire is dense stone such as that used in some European building construction. No precise data exist as to the number of rounds required to produce loopholes or breach holes with the MK 19. However, the rounds' explosive effects are dramatic and should exceed the performance of the .50 caliber machine gun.

(3) ***Armor penetration.*** The 40-mm HEDP round can penetrate the armor on the flank, rear, and top of Soviet-made BMPs and BTRs. Troops can use the M203 from upper stories to deliver accurate fire against the top decks of lightly armored vehicles. Multiple hits are normally required to achieve a kill.

d. **Light anti-armor weapons penetration.** The most important tasks to be performed against structures are the neutralization of fortified firing positions, personnel, and weapons behind barriers. Recoilless weapons can be used in this role. Nothing, however, is as effective as heavy direct-fire weapons or standard demolitions. Each recoilless weapon has different penetrating ability against various targets. Penetration does not always mean the destruction of the integrity of a position. Usually, only those enemy soldiers directly in the path of the spall from a HEAT round become casualties. Other soldiers inside a fortification could be deafened, dazed, or shocked but eventually return to action (Table 2-7).

TARGET	EFFECT WHEN FIRED AT TARGET	RECOMMENDED AIMING POINT
Firing port or aperture	Rounds fired into firing ports or apertures are wasted; rounds detonate inside on the rear of the position, causing little or no damage to the position or equipment and personnel unless hit directly. The AT4 produces less effect than the M72 LAW does.	Coordinate fire: fire light antiarmor weapons at a point 6 to 12 inches from the edge of the aperture or berm
Berm	Firing at the berm causes the round to detonate outside the position or in the berm, producing only a small hole in the berm, but no damage to the position or equipment and personnel unless hit directly. The AT4 produces less effect than the M72 LAW does.	Coordinate fire: fire light antiarmor weapons at a point 6 to 12 inches from the edge of the aperture or berm
Windows	The round may travel completely through the structure before detonating; if not, it causes dust, minor damage to the rear wall, but no damage to the position or equipment and personnel unless they are hit directly. The AT4 produces less effect than the M72 LAW does.	Fire 6 to 12 inches from the sides or bottom of a window. Light antiarmor rounds explode on contact with brick and concrete, creating an opening whose size is determining by the type of round used.
Wall	The round detonates on contact, creating dust, a small hole, and minor structural damage, but little or no damage to the position or equipment and personnel unless hit directly. The LAW may be used to create a loophole to throw hand grenades through. The AT4 produces less effect than the M72 LAW does.	Fire 6 to 12 inches from the sides or bottom of a window. Light antiarmor rounds explode on contact with brick and concrete, creating an opening whose size is determining by the type of round used.
Corners	Corners are reinforced and thus harder to penetrate than other parts of the wall. Any light antiarmor round will detonate sooner on a corner than on less dense surfaces. Detonation should occur in the targeted room, creating dust and overpressure. The overpressure can temporarily incapacitate personnel inside the structure near the point of detonation. The AT4 causes more overpressure than the M72 LAW does.	Fire 6 to 12 inches from the sides or bottom of a window. Light antiarmor rounds explode on contact with brick and concrete, creating an opening whose size is determining by the type of round used.

Table 2-7. Light antiarmor weapons effects on urban targets.

(1) ***M72 LAW.*** The M72 LAW, although light and easy to use, has a small explosive charge and limited penetration. It can be defeated by a double-layer brick wall backed by 4 feet of sandbags since it cannot produce a loophole in this type construction. The LAW requires at least 10 meters to arm. If it hits a target before it arms, it usually does not detonate. (The M72 LAW has been replaced by the AT4 in the US Army inventory of munitions.) The M72 LAW can penetrate:

- 2 feet of reinforced concrete, leaving a dime-sized hole and creating little spall.

- 6 feet of earth, leaving a quarter-sized hole with no spall.

- 12 inches of steel (flanks, rear, and top armor of most armored vehicles), leaving a dime-sized hole.

(2) ***M136 84-mm launcher (AT4)***. The AT4 is heavier than the LAW with a diameter of 84 millimeters, which gives the warhead much greater penetration. The AT4 can penetrate more than 17.5 inches (450 mm) of armor plate. Its warhead produces highly destructive results behind the armor. Tests against typical urban targets are still ongoing, but the AT4 should penetrate at least as well as the 90-mm recoilless rifle if not better. The AT4 has a minimum arming distance of 10 meters, which allows it to be fired successfully against close targets. Firers should be well covered by protective equipment when firing at close targets.

(3) ***84-mm launcher (AT8)***. The AT8 is a lightweight, disposable, multipurpose, direct fire weapon designed especially for MOUT. Externally, the AT8 is almost identical to the AT4, and it is fired in the same manner. The AT8 was procured in limited amounts and issued to selected US Army and USMC units during the Persian Gulf War. Its fuze has the ability to distinguish between armor and soft earth, maximizing its capabilities against buildings, bunkers, or light armor. The warhead detonates immediately against hard targets, but delays detonation against soft targets and burrows in to explode inside. The AT8 destroys earth and timber bunkers, blows large holes in light-armored vehicles, and breaches 8-inch reinforced concrete walls and 12-inch triple brick walls.

(4) ***RAAWS (Carl Gustav).*** The 84-mm Ranger antiarmor weapon system (RAAWS) is issued to some light forces. The recoilless rifle's light weight and maneuverability, combined with great penetrating power, make it a useful weapon during combat in built-up areas. The RAAWS has a HEAT round for use against armored targets and HE and HEDP rounds for use against other targets. The HE round can be set for either airburst or impact burst. It contains 800 steel balls that are distributed in a lethal pattern upon detonation. The HE round is effective against troops in the open or behind vertical cover such as a low wall. The HEDP round is probably the most useful during MOUT. It is effective against light-armored vehicles, thick concrete and brick walls, thin wood walls and field fortifications, and unprotected troops. The RAAWS also fires illumination and smoke rounds. The smoke round is useful to cover friendly units as they cross small open areas. The HEAT round arms at 5 to 8 meters and may throw fragments back as far as 50 meters. The HE round arms at 20 to 70 meters and may throw its steel balls back as far as 250 meters. The HEDP round arms at 15 to 40 meters and produces only slight fragmentation out to 50 meters.

(5) ***Shoulder-launched multipurpose assault weapon (SMAW)***. The SMAW is being issued to US Marine Corps units. It has been type-classified and, in time of war, Army units could find it available. The SMAW is a lightweight, man-portable, assault weapon that is easily carried and placed into action by one man. It is used against fortified positions, but it is also effective against light-armored vehicles. The SMAW has a 9-mm spotting rifle and a 3.8-power telescope, which ensures accuracy over ranges common to combat in built-up areas. The SMAW has excellent incapacitating effects behind walls and inside bunkers and can arm within 10 meters. It fires the same dual-mode fuzed round as the AT8, and it has another round designed for even greater effect against armored vehicles. The SMAW has the same penetration ability as the AT8; it can destroy most bunkers with a single hit. Multiple shots can create breach holes even in reinforced concrete.

e.. **Wall Breaching.** Wall breaching is a common combat task in built-up areas for which light recoilless weapons can be used. Breaching operations improve mobility by providing access to building interiors without using existing doors or windows. Breaching techniques can also be used to create loopholes for weapons positions or to allow hand grenades to be thrown into defended structures. Breach holes for minimum troop mobility should be about 24 inches (60 centimeters) in diameter. Man-sized holes should be about 24 inches by 50 inches in size Loopholes should be about 8 inches (20 centimeters) in diameter. None of the light recoilless weapons organic to maneuver battalions provide a one-shot wall-breaching ability (the AT8, the Carl Gustav, and the SMAW are not organic weapons). To breach walls, a number of shots should be planned.

R-27, Man Size Hole: Leaders should consider the use of the Beast or Explosive Cutting Tape (ECT) for creating man-sized breaches both on the exterior and interior of buildings, allowing soldiers access for assaulting and movement in and through buildings.

(1) Of all the common building materials, heavy stone is the most difficult to penetrate. The M72 LAW and AT4 or AT8 usually will not penetrate a heavy European-style stone wall. Surface cratering is usually the only effect.

(2) Layered brick walls are also difficult to breach with light recoilless weapons. Some brick walls can be penetrated by multiple firings, especially if they are less than three bricks thick. Five LAW rounds fired at the same spot on a 8-inch (double-brick) wall normally produce a loophole. Heavier weapons, such as the AT4, may require fewer rounds. The AT8 and SMAW produce holes in brick walls that are often large enough to be breach holes.

(3) Wooden structural walls offer little resistance to light recoilless weapons. Even heavy timbered walls are penetrated and splintered. Three LAW rounds fired at the same area of a wood-frame wall usually produce a man-sized hole. The AT8 and SMAW have a devastating effect against a wood-frame wall. A single round produces a breach hole as well as significant spall.

(4) Because of its high velocity, the AT4 may penetrate a soft target, such as a car body, frame building, or adobe building, before exploding.

(5) None of the light recoilless weapons is as effective against structural walls as demolitions or heavier weapons such as field artillery. Of all the light recoilless weapons, the SMAW and AT8 are the most effective.

WARNING

The backblast areas of these weapons must be considered. Firing these weapons from inside buildings can cause catastrophic effects if proper precautions are not taken. Some weapons are not recommended for firing from within enclosed areas under any circumstances.

2-12. NONCOMBATANTS

Unless combat has been taking place in an urban area for an extended period of time, units are going to encounter large numbers of civilians on the urban battlefield. These civilians may belong to local country government organizations, nongovernment organizations, private national and international organizations, and the international press, as well as the normal inhabitants of the urban area. Additionally, the urban area may have attracted large numbers of refugees from other combat operations (Figure 2-11). Units will have to know whether to expect civilians to be friendly, uncertain, or hostile and know how to deal with them. Hostile or noncooperative civilians may have to be treated similarly to EPWs. When encountered during building clearing operations, civilians will have to be secured and removed as soon as possible. During defensive preparations, civilians will have to be evacuated. In all cases, units cannot allow the presence of noncombatants to compromise the mission. They must be controlled with the least amount of personnel and turned over to a refugee station or collection point as soon as possible.

R-35, Personnel Restraints: Soldiers can carry and use small and easily portable (in a pocket) restraint devices to control civilian detainees or captured military personnel.

Figure 2-11. Refugees.

a. **Noncombatants and Rules of Engagement.** In order to handle noncombatants, all leaders and soldiers must understand the potential urban battlefield and the place that noncombatants have on it. In the event soldiers must deal with noncombatants, they must refer to their ROE.

b. **Types of Noncombatants.** The four general types of noncombatants that soldiers may encounter on the battlefield are the normal inhabitants of the urban area, refugees, local officials, and members of international organizations and the press. Each has a different role and place, and, as such, must be treated differently. ROE should be very specific on treatment of each type.

c. **Communication with Noncombatants.** Soldiers should be familiar with basic commands and phrases in the foreign language of the area of operation in which they are operating. When giving these commands or phrases, speak loudly and clearly. Speak at a normal rate and use gestures whenever possible. All soldiers should be given a basic language translation card. (See example in Table 2-8.)

ENGLISH	INSERT FOREIGN LANGUAGE	PRONONCIATION
HALT		
WHAT IS YOUR NAME?		
STAND UP		
WALK		
SIT DOWN		
YOU WILL BE SEARCHED NOW		
DON'T TALK		
YES		
NO		
NOT PERMITTED		
MEDICAL AID		
FOOD		
WATER		
USE THE LATRINE?		

Table 2-8. Common commands and phrases used with noncombatants.

d. **Cultural Issues.** Soldiers must be educated on the types of cultural issues that may offend the local inhabitants. An example of this is the type of gestures that may be innocent to Americans but may deeply insult the inhabitants.

e. **Handling Noncombatants.** While civilians in the area may be classified as generally friendly, uncertain, or hostile, it is very difficult to determine how civilians will react to combat situations. In general, it is easier to categorize civilians into cooperative and noncooperative. Noncooperative civilians may have to be treated in much the same manner as EPWs while cooperative civilians may actually be treated as assets, given the situation. Usually, it is better to evacuate civilians from the area, if time permits.

2-13. MOVEMENT

When moving in built-up areas, a platoon follows the same fundamentals, principles, and techniques of movement as in other areas. Enemy action against the platoon might consist of an ambush on the street, enfilade fire down the streets, sniper fire, fire from rooftops and from within buildings, or artillery or mortar fire. The platoon minimizes the effects of enemy defensive fires during movement by:

- Limiting movement outside of buildings.
- Staying off of streets and out of open areas unless absolutely necessary.

- Using covered routes (for example, by moving through buildings).
- Moving only after defensive fires have been suppressed or obscured.
- Moving at night or during other periods of limited visibility.
- Selecting routes that will not mask friendly suppressive fires.
- Crossing open areas such as streets and spaces between buildings quickly under the concealment of smoke and suppression provided by support forces.
- Moving on rooftops that are not covered by enemy direct fires.
- Using the concealment provided by shaded areas.
- Using cover provided by attached armored vehicles.

a. **Elements.** The platoon or squad should move in two or more elements. These elements, or parts of them, can and should exchange roles to preserve the combat effectiveness of the force.

- Maneuver element(s), which moves forward, scouts danger areas, and closes with the enemy. One technique is to move with one element forward on narrow streets or two elements forward on wide streets, giving each other mutual support.
- Overwatch element(s), which moves behind the maneuver element, secures the flanks and rear, and provides fire support (the rest of the platoon and its supporting weapons).

b. **Movement Down Streets.** Should the situation allow or require movement down a street, a technique is to have fire teams move single file along either side of the street under cover of fires from supporting weapons. Larger elements may use one or both sides of the street. They are dispersed and move quickly. Soldiers should not bunch up and should generally be three to five meters apart. Each man is detailed to observe and cover a certain area such as second-floor windows on the opposite side of the street. As in all urban situations, the unit must search for defenders in 360 degrees and in all three dimensions.

c. **Speed of Movement.** The speed of movement depends on the type of operation, terrain, and degree of enemy resistance. As in any other terrain, the faster the speed of movement, the lesser the degree of security; the slower the speed, the more secure the movement. In lightly defended areas, the requirement for speed or the

mission may dictate moving through the streets and alleys without clearing all buildings. Units in urban areas need to remember that smooth movement is actually faster and that they need to move with a careful hurry but not to rush.

d. **Overwatch Element.** The overwatch element provides covering fires for the maneuver element. The overwatch element may station men on roofs or upper stairs for overwatch. Tanks and BFVs are used, if available, for fire support. (See Chapter 5, para. 5-1, Combined Arms Operations.)

e. **Danger Areas.** As in any other type of terrain, danger areas should be avoided if possible. Some may consider that all terrain in an urban area constitutes a massive "danger area". In any case, there are significantly more danger areas in an urban area. What makes these areas distinct is the lack of cover and concealment while being surrounded by areas, which provide both to the enemy. Types of danger areas include but are not limited to:

- Open areas.
- Parking lots/garages.
- Intersections.
- Streets/alleys/roadways.
- Windows.
- Doorways.
- Rooftops.
- Tunnel openings/manholes.

f. **Observing Around Corners of Barriers or Cover.** Corners or barriers or cover are hazardous to untrained soldiers who are not alert. Soldiers should take advantage of shadows. Remember that you do not have to "hug" a barrier to be able to receive cover and concealment from it. There are some advantages to moving back from cover in order to be able to look around it. The most common mistakes untrained soldiers make are:

- not recognizing the danger area
- second, extending their weapons beyond the corner, which exposes their presence

- showing their heads at a height at which enemy soldiers would expect to see them

- not employing their weapon when observing.

NOTE: Remember that line of sight works in both directions. Anyone around the corner will have limited visibility unless they expose themselves to observe. Anyone exposing themselves to gain visibility is exposed to the enemy.

(1) A method of observing around a corner when speed is not a priority is to:

- Lie flat on the ground, weapon at the side, then move forward slowly, ensuring that the weapon is not forward of the corner. You do not want to flag your weapon but it should be ready to fire as you look around the corner.

- Expose the head slowly at ground level so that it appears to be a shadow. Expose the head only enough to observe around the corner (Figure 2-12). Exposing the head at this level presents a target to the enemy that is not normally expected. An observer would normally expect to see a head at head height.

Figure 2-12. Observing around a corner.

(2) A method to use when observing around a corner when speed is a priority is to use the pie method.

- As shown in Figure 2-13 (using the numbered circles), step away from the wall in a careful hurry, following steps 1 through 6 sequentially. Observe only as far around the corner as your weapons carry and stance will provide. Remember to look around the corner for danger in all three levels, above ground, ground level, and below ground.

- Some movement in an urban environment will not be individual and this method can be used by a buddy-team. Both members move and observe at the same time with one looking across and the other down the street or danger area. A support team or overwatching element will have to provide covering fires as required.

- The weapon is kept in an appropriate ready position. The high ready position is usually better in this situation Ensure proper stance and aiming. Be ready to engage targets.

- Ensure you are far enough away from the corner not to flag your weapon and expose your position.

- Use the wall for cover and concealment from the area you have not yet observed.

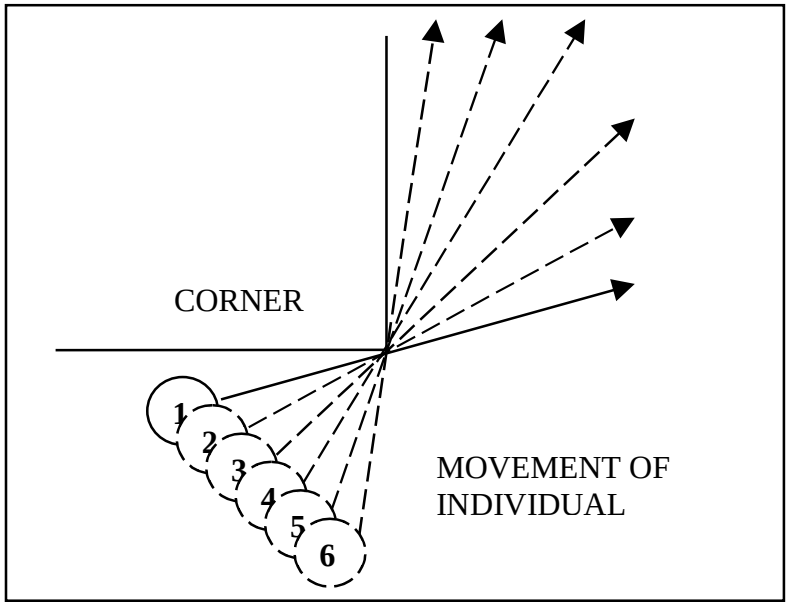


Figure 2-13. Using the Pie method to observe around a corner.

(3) Another method is to use the "tactical peek". This consists of a hasty look around the corner. The head is not held at normal height and the weapon is not normally exposed around the corner.

R-5A, Intelligence Collection/Dissemination: Leaders should consider the use of an Unmanned Aerial Vehicle (UAV) for overflight mapping and reconnaissance of an objective area. This will allow reconnaissance of the objective area without the enemy learning the strength, location, or intentions of the main element.

R-5B, Intelligence Collection/Dissemination: Leaders should consider the use of an Unmanned Ground Vehicle (UGV) for reconnaissance of the inside of tunnel systems, buildings, and other objective areas. This will allow reconnaissance of the objective area without the enemy learning the strength, location, or intentions of the main element.

g. **Hasty Firing Positions.** Hasty firing positions will be used during all phases of urban combat. A shooter has two ways to shoot from behind cover: over it or around it. Shooting over cover offers a wider arc of coverage and provides a stable base if the cover is used as a platform for the weapon. In addition, the shooter may be either left handed or right handed. Often shooting over cover will expose a large amount of the shooter while shooting around often imposes weak hand marksmanship problems. Mastery of weak hand marksmanship is a requirement. Knowing this must be balanced with time in the training scheduled for marksmanship. Teaching soldiers how to shoot will probably focus on strong hand firing techniques but we must not forget simultaneous weak hand marksmanship training.

(1) ***Shooting Over Cover (Vehicles or Medium to Low Wall):*** The shooter should assume a squatting position behind the cover. For lower cover, he may have to assume a kneeling position in order not to expose himself. Weapons should be presented and ready to shoot. As the shooter comes up from behind the cover, he should expose only enough of himself to make the shot. When shooting over cover, the shooter may use the cover as a shooting platform, provided the weapon does not extend beyond the cover. When using this technique, the shooter should never rest the weapon directly on a hard cover. He should place some type of padding (for example, the non-firing hand) between the weapon and the cover.

(2) ***Shooting Around Cover (Standing, Kneeling, and Prone Firing Positions):*** As in shooting over cover, the shooter should set up as close to the cover as possible. Keeping in mind this posturing exposes less of his body to multiple targets as he comes around the cover. On the other hand, by gaining some distance from the barrier, a shooter may find a wider field of view and a mildly more stable firing position.

He should shoot the weapon from the lead side (that is, right handed going right or left handed going left) in order to expose less of the body. If the shooter is not experienced in weak hand shooting, he should employ a lean out, just far enough to engage the farthest outside target and then arc inward, engaging targets as they appear. The technique from the prone position is similar, except that instead of stepping out with the foot, the shooter moves his outside elbow and then rolls to complete his arc. Laying on your side in a doorway or around from under a car is a technique that is available to shooters that have not mastered weak hand marksmanship. Another weak handed corner-edge shooting technique available to M4A1 shooters with the M68 CCO is to collapse the buttstock, hold the weapon with your regular grip, place the buttstock in your weak shoulder pocket, using your non-dominant eye, exposing less of your body to enemy observation and fire.

CAUTION

Repeated shots or exposures made from the same piece of cover may clue the enemy in on your position and timing. If possible, change firing positions on subsequent shots, randomly time your exposure, or volley fire with a partner.

CAUTION

Always ensure that the barrel is clear of obstruction when using aN optic that may narrow your field of view.

(a) *Corners of buildings.* The corner of a building provides cover for a hasty firing position if used properly.

1. The firer should be capable of firing his weapon around corners without overly exposing his body to effective return fire. This is difficult if the firer is attempting to fire around the "wrong corner", for example, a right-handed firer firing around the left side of a building. A technique is switching the shoulder without changing position of the hands on the weapon.

2. A common mistake when firing around corners is attempting to fire from an expected position. The firer exposes himself at the height the enemy would expect a target to appear and risks exposing the entire length of his body as a target for the enemy. It is better to select a lower position to fire from (Figure 2-14).

Figure 2-14. Soldiers firing around cover.

h. **Crossing Danger Areas.** If a danger area must be crossed, consider the following techniques:

- Use smoke to conceal movement. The crossing element must wait for the maximum effectiveness of the concealment before crossing. The wind speed and direction and length of the obscurant clouds must be considered before smoke is employed. The enemy may fire blindly into the smoke to suppress movement so smoke is not a "cure-all". Use of smoke is discussed in paragraph 2-4. b. (4).

R26, Improved Obscurants: Leaders should consider the use of improved hand-held obscurants. The M83 smoke grenade is the most current version.

- Use an overwatch element to suppress known or suspected enemy locations.

- Use deception to aid in crossing. A deception could be to suppress a location with direct or indirect fires while crossing at a different location. Also, throw smoke in two different potential crossing locations and cross in only one of those locations.

- Load dismounted personnel on vehicles for a crossing element to provide speed and security. The use of a BFV as a ferry or shuttle vehicle would be ideal. Alternately, use armored vehicles as cover for infantry.

2-14. STRUCTURES

a. **Types.** The most common types of buildings that are found in developed urban areas are brick buildings, brick houses, box-wall buildings, heavy-clad framed buildings, framed buildings, and light-clad framed buildings. Structures found in underdeveloped countries may be far less structurally sound than in North America or Europe. Structures found in the center of large cities may be the legacy of colonial construction and may be much more structurally sound than those buildings further from the center as the urban sprawl spread (Figure 2-15).

Figure 2-15. Urban sprawl in underdeveloped countries.

Many of these underdeveloped countries are comprised of small towns and villages and very few large cities. Most of the structures in the small towns and villages may be structured of materials ranging from cardboard to concrete block. Some countries in arid regions depend on adobe for construction. Even the larger cities can have shantytowns at the edge that consist of cardboard or tin shacks (Figure 2-16). These less structurally sound buildings have no common floor pattern and are more likely to have only one room. These types of substandard structures present a problem of weapons over-penetration. Weapon fired in one structure may penetrate the walls of one or more buildings. This becomes a hazard for friendly forces as well as non-combatants. Explosive charges need to be reduced, if used at all, so as not to structurally damage the building or destroy it completely.

Figure 2-16. Shantytown construction.

b. **Entrances.** The best way to enter a building is to breach a hole using ballistic or explosive breaching techniques. Doors and windows are to be avoided if possible because of the possibility of booby traps and the expectation of the enemy that they will be used. An entryway in the rear of the building often provides better cover and concealment from other structures for entry than one in the front. If there is enough cover and concealment, an assaulting unit should enter the building at an upper level, using a fire escape, ladder, or other climbing assistance. The use of a grappling hook is possible but many soldiers cannot climb far on a rope with full combat equipment and those who can may not be combat effective after the climb. Soldiers climbing to upper stories are extremely vulnerable and may not be able to employ their weapons properly. However, ropes may provide excellent exits from upper stories of buildings.

c. **Movement Between Buildings.** To move from building to building, the best method is often to move from rooftop to rooftop of row-style houses since the roofs are usually easy to breach. The walls between brick buildings are at least three bricks thick (total of six bricks between brick buildings) and require large quantities of demolitions to breach. Walls are normally easier to breach on an upper floor than a lower floor, since the walls are thinner on upper floors. If rooftops are covered by fire and if there are not enough explosives to breach walls between buildings, moving from the rear of one building to the rear of the next building is safer than moving from the front of one to the next. Adobe walls may be easily breached with shovels or picks.

d. **Floor Plans.**

(1) ***Brick buildings.*** Brick buildings are usually multi-story office, school, or warehouse buildings. The floor plans in brick buildings are usually different on ground floor levels than on upper levels (Figure 2-17).

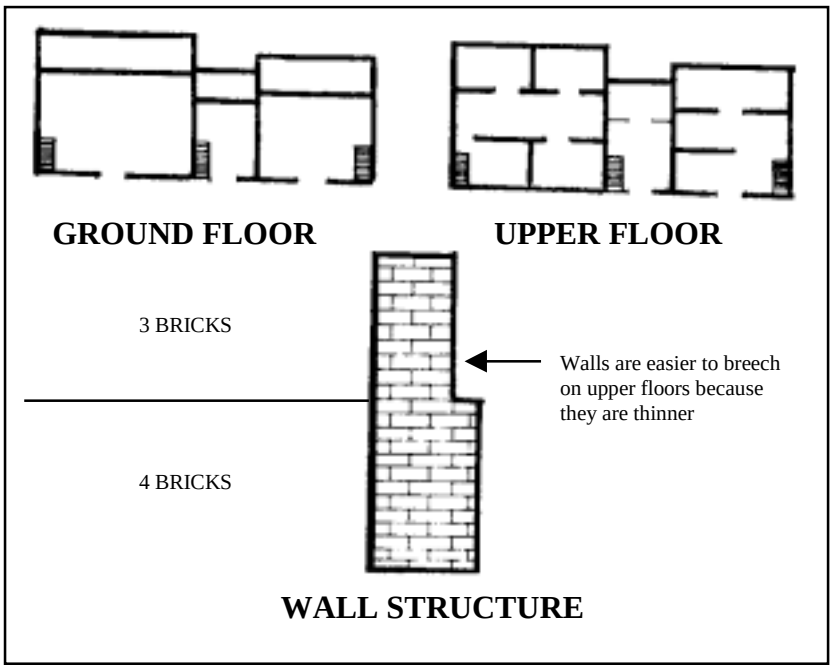


Figure 2-17. Brick building floor plans.

(2) ***Brick houses.*** Brick houses have similar floor plans on each floor (Figure 2-18), therefore, ground floors are cleared the same way as upper floors. The same recommendations for breaching and clearing brick buildings apply except that breaching deeply slanted roofs may be difficult.

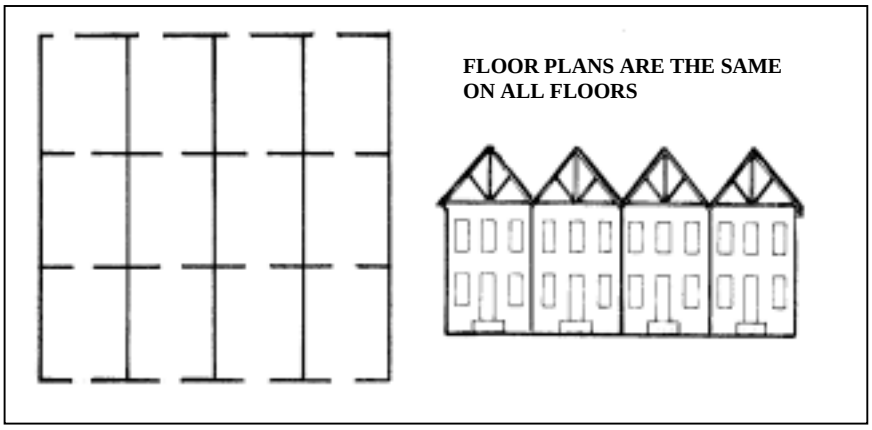


Figure 2-18. Similar floor plans.

(3) ***Box-wall buildings.*** Box-wall buildings often have reinforced concrete walls (Figure 2-19), which are difficult to breach due to the reinforcing bars. Therefore,

the best way to enter is to breach through a door or to breach one of the side windows. The floor plans of these buildings are predictable. Clearing rooms is usually done from one main hallway. Interior walls are also constructed of reinforced concrete and are difficult to breach. The stairways at the ends of the building must be secured during clearing. If a wall breach is chosen, plans must be made to cut the reinforcing bars (rebar).

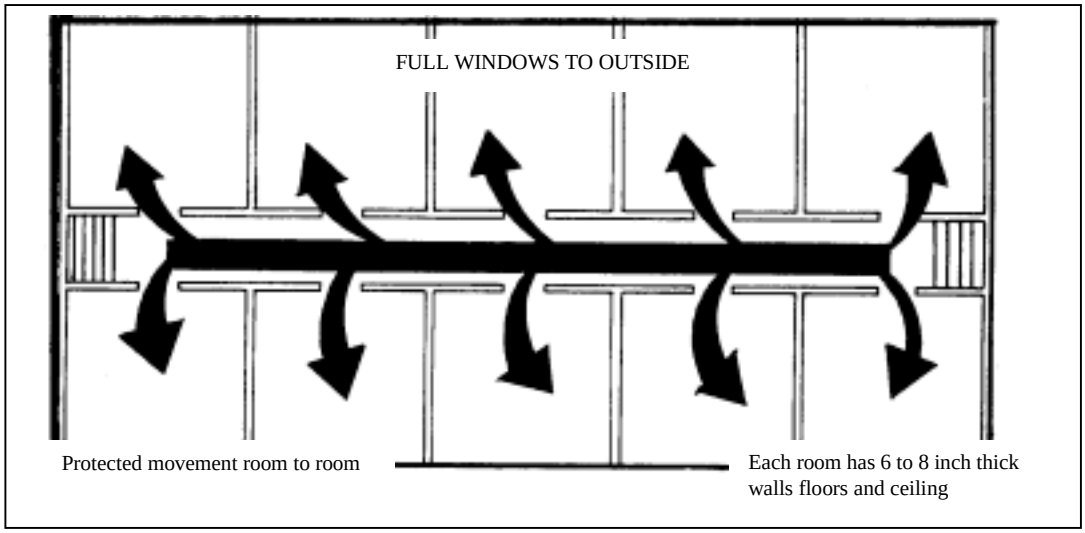


Figure 2-19. Box-wall building floor plan.

(4) ***Heavy-clad framed buildings.*** Heavy-clad framed buildings are relatively easy to breach with explosive or ballistic breaching techniques. Their floor plans are oriented around a stairway or elevator, which must be secured during clearing (Figure 2-20). The interior walls of these buildings can be breached, although this may require the use of explosives.

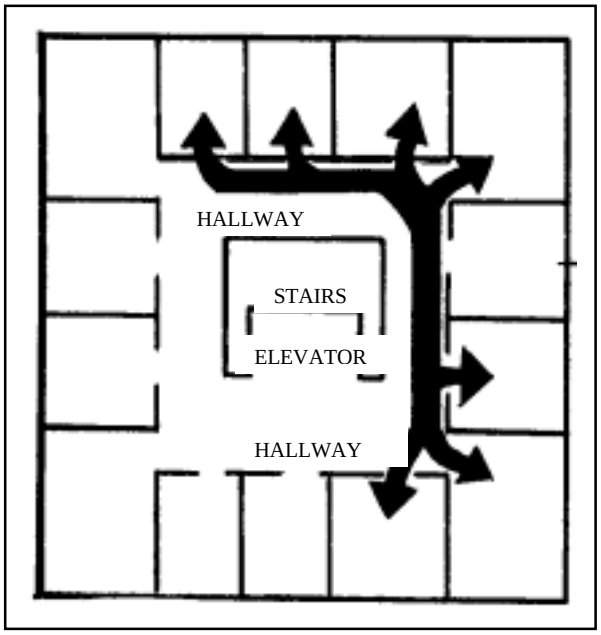


Figure 2-20. Heavy-clad framed building floor plan.

(5) ***Light-clad framed buildings.*** On light-clad framed buildings (Figure 2-21), the clearing tasks are usually the same: secure the central stairway and clear in a circular pattern. Walls are easier to breach since they are usually thinner.

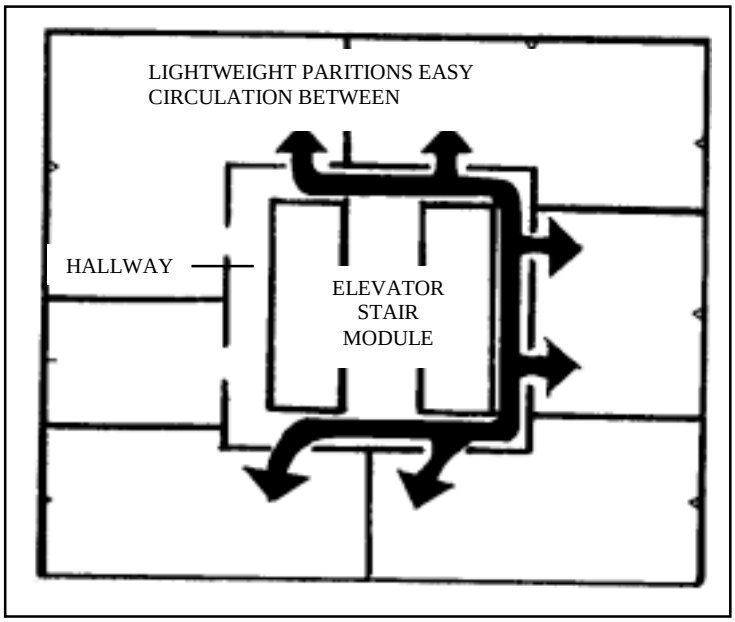


Figure 2-21. Light-clad framed building floor plan.

e. **Utilities.** Units must be aware of the possibility of "live" utilities such as electricity and gas. Most large buildings have utility rooms where there are access panels to the utility connections. Generally, the best situation is to cut off the utilities to any particular building.

2-15. OTHER CONSIDERATIONS OF URBAN COMBAT

There are many other non-mission specific considerations for combat in urban areas. Some of these include:

- Water. Water utilities may not be working due to destruction of the water facilities, lack of power, or the lack of experienced personnel to run them. Even if the water is running, it cannot be expected to have been properly treated.

- Other utilities. Units must be aware of the dangers of electricity and gas lines throughout the urban area.

- Digging. Digging usually is not feasible in urban terrain, except in park or garden areas. This limits positions, emplacement of mines and obstacles.

- Field sanitation. This may be difficult due to lack of water and the inability to dig.

CHAPTER 3
OFFENSE

3-1. GENERAL CONSIDERATIONS

a. **Major Tasks.** At platoon and squad level, the major offensive tasks for combat in built-up areas are attacking and clearing buildings, which involve suppressing defensive fires, advancing the assault force, assaulting the building, clearing the building, and reorganizing the assault force.

b. **Requirements.** Regardless of a structure's characteristics or the type of built-up area, there are four interrelated requirements for attacking a defended building: fire support, movement, assault, and reorganization. Proper application and integration of these requirements reduces casualties and hastens accomplishment of the mission. The type of building to be assaulted, the rules of engagement (ROE), and the nature of the surrounding built-up area determine the application. For example, medium-size towns have numerous open spaces, and larger cities have high-rise apartments and industrial and transportation areas that are separated by parking areas or parks. Increased fire support is required to suppress and obscure enemy gunners covering the open terrain and spaces between buildings. Conversely, the centers of small- and medium-sized towns, with twisting alleys and country roads or adjoining buildings, provide numerous covered routes that can decrease fire support requirements.

3-2. ORGANIZATION

The platoon leader will normally organize his platoon into at least two elements: an assault element and a support element. Depending on the situation, he may designate a breaching element from within either the assault or the support element or it may be a separate element. The size and composition of the elements are determined by the mission given, the type and size of the objective building, whether the adjacent terrain provides open or covered approaches, and the organization and strength of the enemy defenses. If part of a company operation, the platoon could be tasked to be one of these elements only. Similarly, the squad is organized for combat in urban terrain into an assault element and a support element. If support is provided by other elements of the platoon, the squad could be organized into two assault elements. Additionally, there may be a requirement to designate a breaching element or a breacher.

a. **Assault Element.** The purpose of the assault element is to kill, capture, or force the withdrawal of the enemy from any urban objective or to occupy key and decisive terrain. The assault element of a platoon may consist of one, two, or three squads. Squad leaders will normally organize their two fire teams into two clearing teams or, in special circumstances, the squad may be kept as a single clearing team.

NOTE: Clearing techniques are designed to be executed by the standard four-man fire team. This does not mean that all four members must enter a room. Because

of the confined spaces typical of building/room-clearing operations, units larger than squads quickly become unwieldy. When shortages of personnel demand it, two- and three-man teams can conduct room-clearing operations, but four-man teams are optimum. Using fewer personnel greatly increases the combat strain and the risks to the participants.

b. **Support Element.** The purpose of the support element is to provide any support that may be required by the assault element. Suppressive fires must be closely controlled to prevent firing out of sector. The support element at platoon level may consist of the platoon's weapons squad and any personnel not designated as part of the assault element. Fire support and other assistance to advance the assault force is provided by the support force. This assistance includes but is not limited to:

- Suppressing and obscuring enemy within the objective building(s) and adjacent structures.
- Isolating the objective building(s) with direct or indirect fires to prevent enemy withdrawal, reinforcement, or counterattack. (see Chapter 5, para. 5-4, Indirect Fires)
- Breaching obstacles en route to and at the objective structure.

R-30A, Breaching Devices: When explosives cannot be used or are not appropriate or available for breaching, the assault team should consider the use of breaching devices such as the Hooligan's Tool, etc, to force open doors, windows, and to create mouseholes.

R-28, Get on Top of Building: Soldiers should consider the use of devices that allow them to assault the top of buildings without climbing an interior stairwell.

- Destroying or suppressing enemy positions with direct fire weapons.
- Securing cleared portions of the objective.
- Providing replacements for the assault force.
- Providing resupply of ammunition and explosives.
- Evacuating casualties, prisoners, and noncombatants.

R-35, Personnel Restraints: Soldiers can carry and use small and easily portable (in a pocket) restraint devices to control civilian detainees or captured military personnel.

c. **Breaching Element.** The purpose of the breaching element is to provide the assault element with access to an urban objective. An organizational technique is for the platoon leader to assign one fire team as the breaching element, although the breaching element may be as small as one soldier within the assault or support element. An attached engineer or a member of the assault or support element who has had additional training in mechanical, ballistic, and explosive breaching techniques may conduct breaches. The breaching element can accomplish its mission through an explosive breaching method. Other methods include ballistic, which includes using direct fire weapons, and mechanical breaching using, among other things, crowbars, axes, saws, hooligan's tools, and sledgehammers.

R-27, Man Size Hole: Leaders should consider the use of the Beast or Explosive Cutting Tape (ECT) for creating man sized breaches both on the exterior and interior of buildings allowing soldiers access for assaulting and movement in and through buildings.

R-30A, Breaching Devices: When explosives cannot be used or are not appropriate or available for breaching, the assault team should consider the use of breaching devices such as the Hooligan's Tool, etc, to force open doors, windows, and to create mouseholes.

R-30B, Rifle Launched Entry Munition: The assault team should consider the use of breaching devices such as the rifle launched entry munition to force open doors, windows, and to create mouseholes.

3-3. ASSAULT A BUILDING

The assault force, regardless of size, must quickly and violently execute its assault and subsequent clearing operations. Once momentum has been gained, it is maintained to prevent the enemy from organizing a more determined resistance on other floors or in other rooms. The small unit leaders should keep the assault force moving, yet not allow the operation to become disorganized.

a. **Equipment.** The composition of the assault force varies depending on the situation; however, the considerations for equipping the force remain the same no matter what the situation. The criteria for the size of any element are the availability of

equipment and personnel, and the tactical situation. The assault force carries only a fighting load of equipment and as much ammunition as possible, especially grenades. The support force maintains control of additional ammunition and equipment not currently needed by the assault force. An often-overlooked munition in an urban battle is light antitank weapons, such as the LAW and the AT-4. Soldiers can use these for a variety of purposes such as suppressing a manned position or supporting a breach of a structure. Resupply should be pushed to the assault element.

R-12, Personal Protection Equipment: To reduce the high rates of injury to elbows and knees due to hard surfaces encountered in built up areas, all soldiers are encouraged to wear Personal Protection Equipment.

CAUTION

Prolonged use of elbow and knee protection may cause discomfort to soldiers.

R-14C, Personal Protection Kit Version C: Before entering and clearing buildings, squad members should use special protective gloves and sleeves to protect against cuts and abrasions.

b. **Assault Locations.** Entry at the top and fighting downward is the preferred method of clearing a building. This method is only feasible, however, when access to an upper floor or rooftop can be gained from the windows or roofs of adjoining, secured buildings or, when enemy air defense weapons can be suppressed and troops transported to the rooftops by helicopter. Rooftops should be treated as danger areas when surrounding buildings are higher and the element will be exposed to fire from those buildings. Helicopters should land only on those buildings that have special heliports on the roofs or parking garages. Soldiers can rappel onto the roof or dismount as the helicopter hovers a few feet above the roof. Troops then breach the roof or common walls. They may use ropes or other means to enter the lower floors through the holes created.

R-28, Get on Top of Building: Soldiers should consider the use of devices that allow them to assault the top of buildings without climbing an interior stairwell.

c. **Support Element.** The support element is prepared to isolate the building with direct and indirect fires before the assault element moves to the breach point. The unit:

(1) Covers mounted avenues of approach with antiarmor weapons.

(2) Covers dismounted avenues of approach with automatic weapons.

(3) The support element is prepared to suppress enemy fires and neutralize enemy positions as the breach and clearing teams move into position. The support element obscures the movement of the breach and clearing teams to the building by using smoke, if possible. Depending upon the ROE, just before the rush of the assault force, suppressive fires on the objective should be increased by the support force and continued until masked by the advancing assault force. Once masked, fires are shifted to upper or lower windows and continued until the assault force has entered the building. At that time, fires are shifted to adjacent buildings to prevent enemy withdrawal or reinforcement. If the ROE are restrictive, the use of supporting fires may normally be restricted to known enemy locations that have engaged the unit. The location of adjacent units must be considered in the emplacement of supporting fires. The support element destroys or captures any enemy trying to exit the building. The support element must also deal with noncombatants displaced by the assault, EPWs, and casualties.

R-35, Personnel Restraints: Soldiers can carry and use small and easily portable (in a pocket) restraint devices, to control civilian detainees or captured military personnel.

R-8, Remote Marking Munitions: Leaders should consider the use of the M203 TPT round as a remote marking munition to facilitate fire control and distribution of supporting fires.

WARNING

The M203 TPT round has a metal projectile body that can ricochet and cause injuries.

d. **Approaching the Breach Point.** Soldiers may be fighting just to get to the breach point. Proper fire and movement will be required all the way to the breach (entry) point. If the ROE allow, firing and use of grenades or distraction devices into windows and doors starts the violence of action needed to enter. Grenades or distraction devices into areas other than the initial foothold will add to deception about the actual breach (entry) point. The rest of the squad/platoon must provide support to secure (left, right, up and down) the assault element. Remember that the fight will be three-dimensional and in 360 degrees. Assault elements avoid windows and doors since they are usually covered by fire or are boobytrapped. The assault elements must, however, orient and remain oriented on these danger areas as they approach the breach location. Assault elements may need to augment or create obscuration with handheld smoke but must remember not to mask the fires of the support element or obscure the breach (entry)

point. If at all possible, the breach is conducted in such a manner as to allow the assault element to continue movement without having to stop at the breach (entry) point.

(1) ***Order of march.*** The order of march of the assault element to the breach point is determined by the method of breach and intended actions at the breach (entry) point. This preparation must be completed not later than in the last covered and concealed location prior to the breach (entry) point. An order of march technique is to have the assault element numbered one, two, three, and four. The number one man should always be responsible for frontal/door security. Upon arrival at the breach (entry) point and depending on the type of breach to be made, the team leader conducts the breach himself, calls or signals forward the breach man/element, or the assault element quickly moves through the breach (entry) point if the breach has been conducted prior to their arrival. A technique might be to have the squad leader, not part of the assault element, be the breach man. If the breach man is part of the assault element, he will normally be the last man of the assault element into the building or room. This allows him to transition from his breaching task to the close quarters combat tasks.

(a) *Shotgun breach.* A suggested order of movement for a shotgun breach has the shotgunner up front, followed by the number one man, number two man, and then the number three man (team leader). After the door is breached, the shotgunner falls to the rear of the lineup and acts as the number four man.

(b) *Explosive breach.* A suggested order of movement for an explosive breach is number one, number three (team leader), number two, and then number four. The number one man provides security at the entry point. The number three man (team leader) carries the demolition charge and places it. Number two carries a fabricated blast shield, if available. Number four provides rear security. After the demolition charge is placed, team members reform in the standard one, two, three, four configuration behind the blast shield or other protection. Team members can line up on either or both sides if there is adequate protection from the blast.

(c) If neither a shotgun nor an explosive breach is required, the order of movement is the standard one, two, three, four configuration. Team members can line up on both sides of the entry point.

(2) ***Security.*** Security during movement to the breach (entry) point and in the immediate vicinity of the breach point (rear, lateral, and upward, if applicable) is maintained by the assault element. If the assault element is required to stop in the vicinity of the breach (entry) point to wait for the breach, the support element must ensure that supporting fires do not let up, leaving the assault element vulnerable.

(3) ***Approaches.*** Every approach should be planned in advance. Approach a breach point from the blind side if possible. Go for the side with the least number of windows and doors.

e. **Entry Posture.** The assault element leader forms the element in the last covered and concealed position prior to the point of entry in order to conduct last-minute preparations. This is often called a “stack”. The assault element provides its own 360-degree and three-dimensional security unless security can be provided by the support element. The “stack” is not a movement formation and troops should not move bunched up across open areas. If at all possible, assault elements should not be required to halt at the breach (entry) point. Movement between buildings is when the assault element is at its most vulnerable to enemy fire.

f. **Action Outside the Entry Point.**

(1) ***Positions.*** Breach (entry) point position and individual weapon positions are important. The assault element should get as close to the breach (entry) point as possible, postured to enter. The type of breach utilized may determine distances from the breach point. The clearing team's weapons are oriented toward possible areas of threat. If close to an explosive or ballistic breach, assault elements should be behind some kind of cover. If a prefabricated blast shield is available, it should be used.

(2) ***Signals.*** Team members must signal one another that they are prepared before the building is entered. If required, to maintain the element of surprise, team members should communicate with nonverbal signals. If a method such as the tap method is used, however, an inadvertent bump may be misunderstood as a "tap". A better technique would be to send up the "squeeze". By squeezing the shoulder or arm of the man in front, a nonverbal signal is easily understood. Whenever hand and arm signals are used, soldiers should use their non-firing hand to transmit the message. When the element of surprise is not an issue, verbal signals are appropriate.

g. **Execution of the Breach.** Preferably, entry is gained through walls or roofs breached ballistically or by explosives. Chapter 5, para. 5-9, Breaching Techniques, contains a detailed discussion on breaching techniques. If Bradley Fighting Vehicles are attached to the company, they can breach the wall by main gunfire for the initial entry point. Doors and windows should normally be avoided and are used as a last resort due to the threat of booby traps. However, ROE may dictate use of doors and windows until a significant threat of booby traps or the enemy resistance requires otherwise.

R-27, Man Size Hole: Leaders should consider the use of the Beast or Explosive Cutting Tape (ECT) for creating man-sized breaches both on the exterior and interior of buildings, allowing soldiers access for assaulting and movement in and through buildings.

h. **Entrance into a Breach.** Once the team has reached the vicinity of the point of entry, battlefield dispersion must be maintained. This means the assault team

members must avoid bunching up or "stacking" in other than a covered and concealed position in the vicinity of the breach (entry) location. Soldiers must maintain three-dimensional security until the last man enters the breach location. Sometimes a breach may not be easily accessible to an individual soldier. One or more soldiers may have to assist the entrance of a single soldier. Security may have to be provided through another access such as a window until the assault element clears the breach (entry) point.

NOTES:

- Leaders and soldiers should plan the type of entry to be made prior to getting to the breach (entry) location. Some of the things that will influence the type of entry will be the height of the breach (entry) location and conduct of the enemy at the breach location.

- At all times, soldiers should enter with the lowest silhouette possible.

- The use of a weapon should be considered as a last resort to aid the movement of soldiers through a breach (entry) location. The possibility of a weapon becoming inoperative is great if used as a breaching or entry tool.

(1) ***Security while entering.*** If an entry through a breach location is not quick and easy, such as in the case of a window or a mousehole, leaders should consider several techniques to provide support for the initial assault element(s). These techniques can be used individually or combined. Depending on the situation, this may be accomplished by the last man in the assault element, the support element, or the breach element.

- A soldier positions himself in the breach with his weapon oriented inside to provide security while the assault element(s) enters the breach and moves to dominate the initial foothold. This soldier can come from the initial assault element, the support element, or the breaching element. If the soldier comes from the initial assault element, it is recommended that this soldier be the last to enter. In this and the following case, leaders should be aware the last man would be slow to enter and provide domination from within the room. However, prior to entering, this soldier would be dominating the room from his position outside of the room.

- A soldier positions himself in another vantage point such as a window, mousehole, or loophole with his weapon oriented inside to provide security. This position may be more advantageous in that the soldier would not be masked by the assault element moving through the same hole from which he is attempting to provide security or covering fire.

- Soldier(s) break windows, throwing grenades or distraction devices of some type in the vicinity of the initial foothold or other rooms to cause a distraction. This could ease the entry of the initial assault elements into the breach location.

R-14C, Personal Protection Kit Version C: Before entering and clearing buildings, squad members should use special protective gloves and sleeves to protect against cuts and abrasions.

(2) ***Individual entry into a breach requiring climbing.*** If an entrance has to be climbed into, there are several individual methods of entry to use.

- One method of entry is to hook a leg over the site, such as a windowsill and enter sideways, straddling the ledge.

- A second method of entry is to enter headfirst.

- A third method of entry is to roll over the ledge.

NOTE: Every effort must be made by the soldier to maintain control of his weapon and not become disoriented moving through the breach location. Weapons control and soldier orientation are facilitated by thorough rehearsals and rigorous, realistic training.

R-21, Hands-Free Sling: Consider the use of the hands-free sling for the M-16 series, M4 , and the M-249 which allows soldiers to remove one or both hands from the weapon and still have the weapon pointed towards the enemy and easy to get to.

(3) ***Buddy system entry into a breach requiring climbing***. Consider the following when using one or more soldiers to aid in entering a building:

(a) *One soldier lift support (also known as the Single Stirrup Step or Lift).*

- The lifting soldier braces his back or side against the building with his knees slightly bent. The soldier then interlocks his fingers, allowing his hands to hang between his legs (this forms a stirrup). The side of the building is used for cover and concealment. The lifting soldier should not stand in front of the opening.

- The entering soldier moves forward and with a slightly bent leg places his foot inside the lifting soldier's hands. The lifting soldier can select one of two methods: (1) The lifting soldier remains rigid allowing the entry soldier to

use the lifting soldiers hands as steps or (2) The lifting soldier straightens up and helps lift the entry soldier if the entry point requires the extra lift.

- At the same time as either of the lifting soldier's actions, the entry soldier steps up propelling himself towards the breach location.

- A variation of this technique is to have the lifting soldier use his leg as the support.

(b) *One soldier step support.*

- The step support soldier moves to a position beneath the entrance and assumes a position on his hands and knees. A variation of this is to have the soldier bend/crouch down with either side of his body against the wall ensuring his legs are bent. He should bend down low enough to enable the entering soldier to step onto his back. His shoulder blades should be placed so as to allow them to be used as a step into the opening.

- The entering soldier moves forward and places his foot onto the back of the step support soldier between his shoulder blades and not in the small of the back. The entering soldier should not jump as this may cause injury to both himself and the step support soldier.

- The entering soldier steps up and into the entry.

- If the point of entry cannot be reached, the step support soldier should slowly extend his legs in order to raise his back.

- The step support soldier should ensure that his head is tucked in at all times to prevent injury.

(c) *Single soldier shin lift.*

- The soldier to enter stands with palms flat against the building underneath the entry location, one foot firmly on the ground, the other leg is slightly bent at the knee.

- The lifting soldier takes hold of the entry soldier's bent leg with one hand under the shin, the other hand grasping the foot near the heel.

- The entry soldier straightens his leg as the lifting soldier propels him upwards simultaneously.

(d) *Two-soldier hand lift.*

- The entry soldier stands facing the wall, with palms flat against the building, feet shoulder-width apart, heels raised, and standing approximately 2 feet away from the building.

- Two lifting soldiers, one on each side of the entry soldier, face each other and bend forward. The lifting soldiers interlock their fingers and allow their hands to hang between their legs forming stirrups.

- The two lifting soldiers with cupped hands each grasp a heel of the entry soldier. With a quick move, they lift the entry soldier up and into the entrance.

NOTE: A variation of this method can also be used where the lifters hold a plank/bar at thigh height on which the entry soldier steps after which it can be lifted for him to gain extra height.

(4) In addition to physical assistance in entering breaches, assistance may have to be given until security can be established in the foothold. As noted above, security may be provided by soldiers looking through the breach or through some other opening with their weapons. If the ROE allow, grenades or distraction devices may be used to give the assault element the advantage that they need in entering highly restrictive breach (entry) points.

(5) *Upper Level Entry.* Upper level entries succeed more often when they are stealthy, when there is a diversion, and when multiple breaches are executed. When the breach (entry) point is higher than ground level, there are additional considerations that need to be clarified before the operation begins. The method of access must be specified such as ladder, rope, rappelling down, and the use of attached vehicles as climbing platforms. A technique is to divide the squad into an assault element and a support element. Fire support and other support tasks are handled at platoon level. The squad support element provides physical assistance to the assault element to gain access into the upper level breach (entry) point and provides immediate replacements for the assaulting element.

R-28, Get on Top of Building: Soldiers should consider the use of devices that allow them to assault the top of buildings without climbing an interior stairwell.

(a) When a ladder is used, the support element places and braces the ladder while the assault element enters the breach (entry) point. The assault element maintains

security until the ladder is in place, at which time the support element provides limited local security.

- The support element with the ladder moves to the side of the building and takes cover standing flush against the wall.

- Depending on the situation, a grenade/distraction device may be thrown into the window of entry by a soldier from the squad's support element.

- The support element places the ladder next to, under, or in the chosen window. However, a ladder placed in the window is easily pushed off. The support element stands underneath the ladder and secures it by holding its base.

- A soldier from the assault element climbs the ladder and throws a grenade/distraction device in the windows if the situation requires. The soldier then enters the window quickly followed by the next until the entire assault element has entered.

- The support element follows immediately and assists in securing the foothold.

NOTES:

1. The ideal angle for the ladder is 50 degrees for purposes of stability. This, however, does not afford a great deal of cover as it places the climbers a distance away from the building. A steeper angle is less stable but offers better cover from firers in the building as they have to expose themselves to engage the climbers.

2. The top of the ladder should preferably not be placed above or on the windowsill. A ladder placed in such a manner is easily pushed off.

3. Placement of the ladder for entry into an upper story window could well mean that when climbing lower rungs the climber could be exposed to enemy positions in windows on the lower floors. Security or suppression will have to be provided at these windows

(b) When a rope and grappling hook is used, a member or members of the support element might be responsible for throwing and securing of the grappling hook and belaying the rope while the assault element climbs the rope and enter the breach (entry) point.

(c) If armored vehicles are attached, they may be used as climbing platforms. The assault force climbs on top of the vehicle and enters the breach (entry) point much like it would at ground level. When armored vehicles are used as climbing platforms, there is the likelihood that all stealth will be lost.

(d) Once the upper level foothold is established by the assault element, the support element quickly follows through the breach (entry) point and clearing operations begin.

i. **Assault Tasks.** Once inside the building, the priority tasks are to cover the staircases and to seize rooms that overlook friendly as well as enemy avenues of approach to the building. These actions are required to isolate enemy forces within the building and to prevent reinforcement from the outside as well as to allow other friendly forces easy access. The assault elements clear each room on the entry floor and proceed to clear the other floors to include the basement. If entry is not made from the top, consideration should be given to rushing up a staircase immediately and clearing from the top down. If there is a basement, it should be cleared as soon as possible, preferably at the same time as the ground floor. The procedures for clearing a basement are the same as for any room or floor, but important differences do exist. Basements may contain entrances to tunnels such as sewers and communications cable tunnels. These should be cleared and secured to prevent the enemy from infiltrating back into cleared areas. Although the top-to-bottom method is preferred for clearing a building, assaulting the bottom floor and clearing upward is a common method in all areas.

DANGER

A SAFETY CONSIDERATION FOR CLEARING A BASEMENT IS THE HIGH PROBABILITY OF RICOCHET.

j. **Suppressive Fires During the Assault.** The support element provides suppressive fire while the assault team is systematically clearing the building. Consistent with the ROE, it also provides suppressive fire on adjacent buildings to prevent enemy reinforcements or withdrawal. Suppressive fire may consist of firing at known and suspected enemy locations or, depending on the ROE, may only include firing at identified targets or returning fire when fired upon. If usable under the ROE, the M203 can provide excellent suppression through windows.

R-3, NLOS Radio: Due to the line of sight (LOS) nature of unit TO&E FM radios and the decentralized nature of combat in urban terrain, the use of a NLOS radio for improved communication capabilities should be considered. This type of radio may also be able to provide the user with hands off capabilities, minimum body movement for operation, and remote channel/frequency changing. If fielded to each soldier, it may provide the capability of a unit "intercom".

NOTE: Because of their lack of secure capability, transmissions on these radios must be considered as being monitored by enemy forces, news media, and any entity with a minimum of technology. Transmissions must be characterized by the use of call signs, authentication, and prowords to transmit data.

k. **Squad Leader.** The squad leader has to perform his basic command and control duties and should not lose sight of his duties as he performs other functions . If he is not part of a clearing team, the squad leader may act as the breacher. After the squad establishes a foothold in the building, he designates an assault element to continue the clearing. The squad leader may rotate fire teams (assault elements) to maintain the momentum of the assault.

3-4. CLEARING A BUILDING

a. **Principles.** A large portion of combat in built-up areas takes place at very close quarters, often between small groups of combatants within the confines of a single room. Because of this, individual combat actions can flare up quickly and be over in a matter of seconds. Success or failure is often determined by life or death decisions made and actions taken almost instinctively by individual soldiers and small teams as they encounter differing complex situations in each new room. One of the complexities often encountered is the intermixing of combatants with noncombatants in the same building, often in the same rooms. The principles of urban combat are surprise, speed, and controlled violence of action. These principles do not change regardless of ROE. Each of the principles of close quarters combat has a close relationship to the others. Successful surprise allows increased speed. Controlled violence coupled with speed increases surprise.

(1) ***Surprise.*** Surprise is the key to a successful assault at close quarters. The assault element or squad clearing the room must achieve surprise, if only for seconds, by deceiving, distracting, or startling the enemy. Sometimes grenades or distraction devices may be used to achieve surprise. These are more effective against a non-alert, poorly-trained enemy than against alert, well-trained soldiers. An explosive or ballistic breach will also provide some element of stunning the occupants of a room if the ROE permit.

(2) ***Speed.*** Speed provides a measure of security to the clearing unit. Speed lets soldiers use the first few vital seconds provided by surprise to their maximum advantage. In urban combat, speed does not mean incautious haste. It can best be described as "careful hurry."

(3) ***Controlled violence of action.*** Controlled violent action eliminates or neutralizes the enemy while giving him the least chance of inflicting friendly casualties. Controlled violent action is not limited to the application of firepower only. It also involves a soldier mind-set of complete domination.

b. **Clearing Techniques.** Certain techniques, such as methods of movement, firing stances, weapon positioning, and reflexive shooting, are useful for all combat in confined areas. Employing these techniques is often the most effective means of achieving victory while minimizing friendly losses, avoiding unnecessary noncombatant casualties, and conserving ammunition and demolitions for subsequent operations. Each member of the unit must understand the principles of urban combat and the part his actions play in their successful execution. As in all other military operations, battles that occur at close quarters, such as within a room or hallway, must be planned and executed with care.

(1) Techniques to be used when the tactical situation calls for room-by-room clearing of a relatively intact building in which enemy combatants and noncombatants may be intermixed are required by highly restrictive ROE. These techniques involve increased risk to clear a building methodically, rather than using overwhelming firepower to neutralize all its inhabitants. Examples of highly restrictive ROE might be in force when:

- Use of heavy supporting fires and demolitions would cause unacceptable collateral damage.

- Enemy combatants are so intermixed with noncombatants that the ROE prevent US forces from using all their available supporting fires, and room-by-room clearing may be necessary.

- The likelihood of fratricide requires restrictive ROE.

R-24, Frangible Ammunition: In some instances, to prevent the possibility of fratricide or injury to friendly inhabitants, consider the use of 5.56-mm and 7.62-mm Controlled Penetration Ammunition (CPA) "Soft Round" which will penetrate human bodies/walls and then stop either in the body or in the wall.

WARNING

Because frangible ammunition disintegrates upon impact with any surface harder than the projectile itself, safety glasses should be worn to protect eyes from fragments.

NOTE: The use of frangible ammunition will prevent firing through objects (furniture, walls, etc.). This could place the unit at a severe disadvantage against an enemy not so equipped.

(2) In normal circumstances, if a room or building is occupied by an alerted enemy force that is determined to resist, if noncombatants are clear, and if the ROE will support it, overwhelming firepower should be employed to avoid friendly casualties. In such a situation, supporting fires, demolitions, and possibly, fragmentation grenades should be used to neutralize a space before friendly troops enter.

R-34, Stun Grenade: To prevent the possibility of fratricide or injury to friendly inhabitants, soldiers should consider the use of nonlethal stun grenades rather than the fragmentation grenade.

c. **Fundamentals of Clearing Operations.** The fundamentals of clearing operations include actions soldiers take while moving along confined corridors to the room to be cleared, while preparing to enter the room, during room entry and target engagement, and after contact. Team members must:

- Move tactically and as stealthily as possible while securing the corridors to the room to be cleared. They must carry only the minimum amount of equipment. Rucksacks and loose items carried by soldiers tire them, slow their pace, and cause noise.

- If possible, arrive undetected at the entry to the room and in the correct order of entrance, prepared to enter on a single command or signal.

- Enter quickly and dominate the room. They must move immediately to positions that allow complete control of the room and provide unobstructed fields of fire.

- Eliminate all enemy within the room by the use of fast, accurate, and discriminating fires.

- Gain and maintain immediate control of the situation and all personnel in the room.

R-35, Personnel Restraints: Soldiers can carry and use small and easily portable (in a pocket) restraint devices, to control civilian detainees or captured military personnel.

- Confirm whether enemy casualties are wounded or dead. They must search all enemy casualties, disarming them and segregating the wounded.

R-14B, Personal Protection Kit Version B: To prevent spreading contaminant infections, soldiers should use protective gloves and masks to administer first aid to noncombatants and prisoners of war.

- Immediately perform a cursory search of the room and determine if a detailed search is required.

- Evacuate all wounded.

- Evacuate any friendly dead.

R-14B, Personal Protection Kit Version B: Soldiers should use protective gloves and masks when handling bodies.

- Mark the room as cleared, using simple, clearly identifiable marking in accordance with the unit SOP. Some common markings can include spray paint, a reflective physical training strap, or chalk. Markings may be placed on the outside of cleared floors on multistory buildings to show the progress of clearing operation to friendly forces if this will not give intelligence to enemy forces.

- Report the room being cleared by radio or by messenger.

R-3, NLOS Radio: Due to the line of sight (LOS) nature of unit TO&E FM radios and the decentralized nature of combat in urban terrain, the use of a NLOS radio for improved communication capabilities should be considered. This type of radio may also be able to provide the user with hands off capabilities, minimum body movement for operation, and remote channel/frequency changing. If fielded to each soldier, it may provide the capability of a unit "intercom".

NOTE: Because of their lack of secure capability, transmissions on these radios must be considered as being monitored by enemy forces, news media, and any entity with a minimum of technology. Transmissions must be characterized by the use of call signs, authentication, and prowords to transmit data.

- Maintain security at all times and be prepared to react to more enemy contact at any moment. They must not neglect rear security but priority must be given to the direction of attack.

- Rotate clearing teams to maintain the momentum of the attack.

3-5. CLOSE QUARTERS COMBAT TECHNIQUES

Individuals who are part of a clearing team must move in a standard manner, using practiced techniques known to all. Positive weapons control and proper shooting techniques enable individuals to fight and win in an urban battlefield minimizing casualties and collateral damage. Additionally, effective communication among members enhances command and control.

R-3, NLOS Radio: Due to the line of sight (LOS) nature of unit TO&E FM radios and the decentralized nature of combat in urban terrain, the use of a NLOS radio for improved communication capabilities should be considered. This type of radio may also be able to provide the user with hands off capabilities, minimum body movement for operation, and remote channel/frequency changing. If fielded to each soldier, it may provide the capability of a unit "intercom".

NOTE: Because of their lack of secure capability, transmissions on these radios must be considered as being monitored by enemy forces, news media, and any entity with a minimum of technology. Transmissions must be characterized by the use of call signs, authentication, and prowords to transmit data.

These techniques will minimize the chance of fratricide and maximize lethality towards the enemy.

R-24, Frangible Ammunition: In some instances, to prevent the possibility of fratricide or injury to friendly inhabitants, consider the use of 5.56-mm and 7.62-mm Controlled Penetration Ammunition (CPA) "Soft Round" which will penetrate human bodies/walls and then stop either in the body or in the wall.

WARNING

Because frangible ammunition disintegrates upon impact with any surface harder than the projectile itself, safety glasses should be worn to protect eyes from fragments.

NOTE: The use of frangible ammunition will prevent firing through objects (furniture, walls, etc.). This could place the unit at a severe disadvantage against an enemy not so equipped.

a. **Fundamentals of Close Quarters Combat.**

(1) ***Eliminate the threat.*** Accomplished through the use of accurate fires and violence of actions.

(2) ***Dominate the room.*** Move to points that will allow control of the room by proper interlocking fields of fire. Clearing teams dominate the room with their weapons, not their bodies.

(3) ***Speed.*** Never move faster than possible to accurately engage targets.

(4) ***Control the situation/personnel.*** Ensure that no one resists or maintains the means to resist, and ensure that both enemy and friendly personnel follow all instructions. Clear, loud orders to all are essential even if the clearing team does not speak the language of the occupants of the room. You must physically and psychologically dominate.

(5) ***Establish security.*** This is done from the point of domination.

(a) *Search the dead.* Accomplish IAW unit SOP. Use the "eye thump" to ensure that the "dead" are really dead. Thumping the eyelids and then looking for reflexive responses does this.

R-14B, Personal Protection Kit Version B: Soldiers should use protective gloves and masks when handling bodies.

(b) *Search the room.* The room may or may not need to be searched to identify personnel or equipment for extraction. This is dependent on the mission and time available.

(6) ***Evacuate personnel.*** This is done when there are equipment or personnel to be evacuated. If there are no equipment or personnel to be evacuated, the clearing team continues with its mission.

R-35, Personnel Restraints: Soldiers can carry and use small and easily portable (in a pocket) restraint devices, to control civilian detainees or captured military personnel.

(7) ***Markings.*** Mark the cleared rooms IAW the unit Marking SOP.

(8) ***Reporting.*** Report the cleared rooms IAW the unit SOP.

b. **Target Discrimination.** Target discrimination is the act of distinguishing between threat and nonthreat personnel during combat in close quarters. Even if an objective is known to be free of noncombatants, other soldiers and friendly units moving through the objective area may be mistaken for enemy. Target discrimination is an inescapable responsibility. Proper target discrimination instills fire control as well ensuring the safety of all friendly forces.

c. **Reflexive Shooting Techniques.** Due to the very nature of a close quarters combat encounter, engagements will be very close (within 10 meters) and very fast (target exposed for only a few seconds). Most close quarters engagements are won by who hits first and puts the other one down. It is more important to knock a man down as soon as possible than it is to kill him. To win a close quarters engagement, soldiers must make quick, accurate shots by mere reflex. This is accomplished by the proper training in and application of reflexive firing techniques. This method of shooting is the only way for the assault element to succeed consistently with the least amount of casualties and collateral damage.

(1) ***Individual movement and weapon control.***

- When moving, the assault element holds their weapons with the muzzles pointed in the direction of travel. They place the butt of the rifle or carbine in the pocket of their shoulders and point the muzzles slightly down to allow for unobstructed vision. The soldiers use their firing hand for that purpose only; they use their nonfiring hand to open things up or to throw grenades.

R-21, Hands-Free Sling: Consider the use of a hands-free sling for the M-16 series, M4 , and the M-249 which allows soldiers to remove one or both hand from the weapon and still have the weapon pointed towards the enemy and easy to get to.

- Shooting is done while moving toward the point of domination. Shots are taken as close to the target as 1 or 2 inches. Because shots are taken while the assault element is moving, it is essential that they use a "careful hurry" as opposed to rushing in with total disregard for any furniture or obstructions that may litter the floors just to get to their points of domination. The most important point is for the assault element to lead with their weapons, not with their bodies. Assault elements must not move faster than they can accurately engage targets.

- The lead man of an assault element must avoid "flagging," or leading, with the weapon when working around windows, doors, corners, or areas where obstacles must be negotiated. Flagging the weapon gives advance warning to anyone looking in the soldier's direction, making it easier for an enemy to grab the weapon or to react to the appearance of the clearing team. Soldiers must keep their weapons under control at all times.

(2) ***Weapon ready positions.*** The two weapon ready positions are low ready and high ready.

- Low ready position. The butt of the weapon is placed firmly in the pocket of the shoulder with the barrel pointed down at approximately a 45-degree angle. This is the safest carry position. It should be used by the clearing team when there is no imminent threat (Figure 3-1).

- High ready position. The butt of the weapon is held under the armpit, with the barrel pointed slightly up, keeping the front sight assembly under the line of sight but within the gunner's peripheral vision. To engage a target, the gunner pushes the weapon out as if to bayonet the target. When the weapon leaves the armpit, he slides it up into the firing shoulder. This technique is best suited for the entry posture in the last covered and concealed position outside the breach (entry) point (Figure 3-2).

Figure 3-1. The low ready position for the M16.

Figure 3-2. The high ready position for the M16.

(3) ***Stance.*** For both ready positions, the feet are approximately shoulder-width apart. Toes are pointed straight to the front (direction of movement). The firing side foot is slightly staggered to the rear of the non-firing side foot. Knees are slightly bent and the upper body leans slightly forward. Shoulders are not rolled or slouched. The firing side elbow is kept in against the body. The stance should be modified to ensure that the soldier maintains a comfortable boxer stance. When engaging targets, the soldier holds the weapon with the butt in the pocket of his shoulder.

(4) ***Aim.*** The following four aiming techniques all have their place during combat in built-up areas.

- Slow Aimed Fire. This technique is the most accurate. It consists of taking up a good sight picture and using the four fundamentals of marksmanship when time permits. This technique is always the preferred technique and is required for distant engagements.

- Rapid Aimed Fire (Flash Sight Picture). This technique features an imperfect sight picture where windage is critical and elevation is of lesser importance. When the front sight post is in line with the target, the soldier squeezes the

trigger. This technique is used against targets from 0 - 25 meters and at a fast rate of fire.

- Aimed Quick Kill. This technique consists of placing the front sight post flush on top of the rear peep sight. This is used for very quick shots from 0 - 11 meters. Windage is important, but elevation is not as critical in relation to the target.

- Instinctive fire. This technique is the least accurate. The soldier focuses on the target and points the weapon in the target's general direction, using muscle memory. A technique is to adjust the placement of the non-firing hand for accuracy. While gripping the handguard, the soldier extends the index finger down the barrel so that by pointing the index finger toward the target, the barrel is automatically on line. This technique can only be mastered after a long period of training, and must constantly be refreshed.

(5) ***Trigger manipulation.***

NOTES: 1. Always fire until the enemy goes down.

2. All reflexive firing will be with both eyes open.

(a) *Controlled pair.* There is a natural arc of the front sight post after the round is fired and the recoil kicks in. The firing soldier lets the barrel go with this arc and immediately brings the front sight post back on target and takes a second shot, acquiring a sight picture. The soldier continues to shoot until the enemy goes down. The soldier does not fight the recoil.

(b) *Double tap.* The firing soldier fires twice in quick succession from one sight picture before taking up another sight picture. If required, another sight picture is acquired and the firer fires twice again.

(c) *Automatic fire.* Automatic fire is an option for soldiers in a close quarters combat environment. It is effective for violence of action when fire superiority is needed to gain entry. Automatic fire is fired in controlled bursts only (2-3 rounds). Once properly trained, a soldier will be able to fire six rounds (two bursts) in the same time than he could fire two rounds in a controlled pair. The accuracy when engaging targets at less than 10 meters is nearly equal. This technique should normally be limited to the #1 and #2 men entering a room due to the possibility of a stray round. However, the M249 gunner has no choice but to become proficient in this technique and he may be used in any entry position. The same fundamentals are used as in the rapid-aim fire, aimed quick kill, or instinctive fire. The weapon will rise during the engagement, the soldier must let it. Aim point is slightly down and left to account for this action. A technique to ensure accuracy is to concentrate on not jerking the trigger, a tendency

when firing automatic. Proper automatic firing techniques require effective training to ensure fire control and prevent fratricide.

d. **Malfunctions.** If a soldier has a malfunction with his weapon during any close quarters combat, he should immediately take a knee to conduct immediate action except when in a doorway, etc. Once the malfunction is cleared, there is no need to stand up to engage targets. He can save precious seconds by continuing to engage from one knee. Whenever other members of the team see a soldier take a knee, they must automatically clear his sector of fire. Before rising to his feet, the soldier must warn his clearing team members of his movement and only rise after they acknowledge him. This will minimize the chance of fratricide among team members. Another technique would be to have the soldier remain in place. After the engagement, another team member directs the kneeling soldier to rise.

NOTE: Team members must be aware of the actions to take if any member has a malfunction and who covers that sector of fire. This should be practiced when rehearsals are conducted.

e. **Command and Control.** During close quarters combat, soldiers will be very close to each other as they engage targets. The high volume of noise will make communications extremely difficult. It is imperative that the command and control techniques used during combat in close quarters consist of terms and actions that soldiers are familiar with and to which they know how to respond.

(1) ***Verbal commands.*** As an example, terms similar to the ones listed below should be a part of each soldier's vocabulary IAW unit SOP.

- **"STATUS!"** Signal by assault element leader that requires all element members to report whether their sectors are clear and whether they are prepared to continue the mission.

- **"UP!"** ("ONE UP!", "TWO UP!", "THREE UP!", "FOUR UP!"). Given by each team member that his sector is clear and he is prepared to continue the mission.

- **"ROOM CLEAR!"** Signal from team leader to team members, squad leader, and follow on teams that the room is secure and cleared.

- **"BREACH TO MY (GIVE DIRECTION), STACK LEFT/RIGHT!"** Command given by team leader to team members or follow-on team to position themselves on the right or left side of the breach.

- **"COMING OUT!"** A signal given by individual or team that they are ready to exit a room. This command should be used in conjunction with a hand and

arm signal out of the door. This is important because a team may not exit out the door they entered.

- **"COME OUT!"** A reply given by security element or follow-on team that it is all right to exit the room.

- **"COMING IN!"** A signal given by individual or team preparing to enter an occupied room.

- **"COME IN!"** A reply given by personnel in a room that it is all right to enter an occupied room.

- **"DRY HOLE!"** A room that is empty of personnel or equipment.

- **"MAN DOWN!"** A command given when an individual is injured and cannot continue the mission.

- **"SUPPORT OR HELP LEFT/RIGHT!"** A request given by the team leader for additional personnel for security or clearing purposes.

- **"CEASE FIRE!"** A command given by any soldier that requires all firers to cease fire because of an unsafe act or injury to an individual.

- **"SHOT!"** Given by any team member to alert others that he is engaging targets outside of the room.

- **"SHORT ROOM!"** Given by team member ONE or TWO to signal a small room and that all team members should not enter.

- **"GRENADE!"** A command given by any soldier. All soldiers need to take immediate actions. Although difficult, if possible, the soldier should identify location of the grenade.

- **"LONG!"** A command given to tell another team member to take up security further into the room.

NOTE: The use of loud verbal commands may signal the enemy the location and immediate intent of friendly forces. Code words may be substituted. These terms can be picked up by enemy forces and the terms can be used by the enemy if friendly forces use them too loudly.

R-3, NLOS Radio: Due to the line of sight (LOS) nature of unit TO&E FM radios and the decentralized nature of combat in urban terrain, the use of a NLOS radio for improved communication capabilities should be considered. This type of radio may also be able to provide the user with hands off capabilities, minimum body movement for operation, and remote channel/frequency changing. If fielded to each soldier, it may provide the capability of a unit "intercom".

NOTE: Because of their lack of secure capability, transmissions on these radios must be considered as being monitored by enemy forces, news media, and any entity with a minimum of technology. Transmissions must be characterized by the use of call signs, authentication, and prowords to transmit data.

(2) ***Graphic control measures.*** All personnel should know the limits of advance and the left and right limits. Boundaries should not be crossed. They should not be fired across unless an enemy position is clearly identified and is a threat to the unit.

R-5A, Intelligence Collection/Dissemination: Leaders should consider the use of an Unmanned Aerial Vehicle (UAV) for overflight mapping and reconnaissance of an objective area. This will allow reconnaissance of the objective area without the enemy learning the strength, location, or intentions of the main element.

R-5B, Intelligence Collection/Dissemination: Leaders should consider the use of an Unmanned Ground Vehicle (UGV) for reconnaissance of the inside of tunnel systems, buildings, and other objective areas. This will allow reconnaissance of the objective area without the enemy learning the strength, location, or intentions of the main element.

(3) ***Hand and arm signals.*** Each unit should have a collection of standard hand and arm signals in its SOP. These are critical when the battlefield noise is too great for verbal signals to be heard or in the case of stealthy operations.

(4) ***Rehearsals.*** Rehearsals enhance command and control. Every man in the unit must know what every one else is doing and where they will be.

3-6. CLEARING OPERATIONS

a. **Actions Outside the Point of Entry.** Actions outside the point of entry must be quick and well rehearsed. The doorway or breach point is a dangerous position. The

assault element is focused on entry and could be surprised by an enemy appearing unexpectedly in the corridor. Explosive charges or door buster type charges should be used for initial entry into a building. Once inside however, explosive charges may be inappropriate due to lack of protection from the blast and overpressure from the explosion.

R-27, Man Size Hole: Leaders should consider the use of the Beast or Explosive Cutting Tape (ECT) for creating man sized breaches both on the exterior and interior of buildings allowing soldiers access for assaulting and movement in and through buildings.

R-30B, Rifle Launched Entry Munition: The assault element should consider the use of breaching devices such as the rifle launched entry munition to force open doors, windows, and to create mouseholes.

R-30A, Breaching Devices: When explosives cannot be used or are not appropriate or available for breaching, the assault element should consider the use of breaching devices such as the Hooligan's Tool, etc, to force open doors, windows, and to create mouseholes.

(1) Assault element members' positions relative to the entry point are as important as their weapons carry positions. Team members stand as close to the entry point as possible in the last covered and concealed position, staying in a crouched position but not in a kneeling position. If the team members were to be kneeling, seconds or fractions of a second would be lost getting up. They hold their weapons either in an appropriate weapon ready position. They ensure that the muzzle is not pointed at another team member.

(2) All team members must signal one another that they are prepared before the assault element enters the room. The last man taps or squeezes the arm of the man in front of him and each one passes this signal along. Team members limit the use of verbal signals, which may alert the enemy of their location and destroy the element of surprise.

(3) All individual equipment that is carried must be selected carefully and prepared properly to ensure that it is quiet and not cumbersome. Only essential items should be carried during combat in urban areas. All team members should wear protective vests and helmets. Additional protective equipment, such as gloves, kneepads, or goggles, should be worn. Excess equipment will hinder entry and movement. Equipment not immediately required should be left in the last covered and concealed position. Positioning of required equipment must be uniform. Locations

must be standardized so that equipment can be found quickly on any team member when required. Standardized equipment should include:

- All sensitive items.
- Radios.
- Ammunition.
- Pyrotechnics.
- Breaching equipment

R-30A, Breaching Devices: When explosives cannot be used or are not appropriate or available for breaching, the assault team should consider the use of non-explosive breaching devices such as the Hooligan's Tool, etc., to force open doors, windows, and to create mouseholes.

- Grenades and distraction devices.

R26, Improved Obscurants: Leaders should consider the use of improved hand-held obscurants. The M83 smoke grenade is the most current version.

R-34, Stun Grenade: To prevent the possibility of fratricide or injury to friendly inhabitants, soldiers should consider the use of nonlethal stun grenades rather than the fragmentation grenade.

- Demolitions.
- Medical supplies.

R-14B, Personal Protection Kit Version B: To prevent spreading contaminant infections, soldiers should use protective gloves and masks to administer first aid to noncombatants and prisoners of war.

- Personnel restraints.

R-35, Personnel Restraints: Soldiers can carry and use small and easily portable (in a pocket) restraint devices to control civilian detainees or captured military personnel.

R-12, Personal Protection Equipment: To reduce the high rates of injury to elbows and knees due to hard surfaces encountered in built up areas, all soldiers are encouraged to wear Personal Protection Equipment.

CAUTION

Prolonged use of elbow and knee protection may cause discomfort to soldiers.

R-14C, Personal Protection Kit Version C: Before entering and clearing buildings, squad members should use special protective gloves and sleeves to protect against cuts and abrasions.

R-21, Hands-Free Sling: Consider the use of the hands-free sling for the M-16 series, M4 , and the M-249 which allows soldiers to remove one or both hand from the weapon and still have the weapon pointed towards the enemy and easy to get to.

(4) A decision must be made on what type of breach and preparations made almost instantaneously.

b. **Entry Posture.** The assault element leader forms the element in the last covered and concealed position prior to the point of entry. This is often called a “stack”. This is a entry preparation posture and is not a movement formation. The assault element provides its own 360-degree and three-dimensional security unless security can be provided by the support element.

c. **Entry.**

(1) The entire assault element should enter the room as quickly and as smoothly as possible and clear the entry point immediately. A grenade or distraction device of some type may be thrown prior to entry depending on the ROE. Depending on the size of the room and the enemy situation, the leader may direct that only two or three soldiers enter the room initially.

R-34, Stun Grenade: To prevent the possibility of fratricide or injury to friendly inhabitants, soldiers should consider the use of nonlethal stun grenades rather than the fragmentation grenade.

(2) The door is the focal point of anyone in the room. If using the door as the entry point, moving into the room quickly reduces the chance that anyone will be hit by enemy fire directed at the doorway. ROE may dictate that breaches through walls not be made, forcing doorway entry.

(3) Any entry point is known as the "fatal funnel", because it focuses attention at the precise point where the individual team members are the most vulnerable. Hallways are extensions of fatal funnels.

(4) On the signal to go or immediately after the grenade or distraction device detonates, the clearing element moves through the entry point quickly and takes up positions inside the room that allow it to completely dominate the room and eliminate the threat. Team members stop movement only after they have cleared the door and reached their designated point of domination. Points of domination are not in front of doors, windows, or mouseholes to avoid being silhouetted.

DANGER

IF WALLS AND FLOORS ARE THIN, FRAGMENTS FROM FRAGMENTATION GRENADES CAN INJURE SOLDIERS OUTSIDE THE ROOM. LEADERS MUST DETERMINE THE EFFECTIVENESS OF THIS TYPE OF GRENADE COMPARED TO POSSIBILITIES OF HARM TO FRIENDLY TROOPS.

(5) To make clearing operations techniques work, each member of the assault element must know his sector of fire and how his sector overlaps and links with the sectors of the other team members. Sectors of fire include the ceiling. Team members do not move to the point of domination and then engage their targets. They engage targets as they move to their designated point. However, engagements must not slow movement to their points of domination. Team members may shoot from as short a range as 1 to 2 inches. They engage the most immediate enemy threats first and do not stop until the enemy goes down. Team members stop movement only after they have cleared the entry point and reached their designated point of domination. They must be prepared to modify their path due to furniture and other obstacles. Examples of immediate threats are enemy personnel who:

- Are armed and prepared to return fire immediately.

- Block movement to the position of domination.
- Are within arm's reach of a clearing team member.
- Are within 3 to 5 feet of the entry point.

(6) The effect of furniture in the room and/or furniture overturned as barriers cannot be overemphasized. Clearing techniques will have to be significantly modified to accommodate these obstacles to movement. Any type of furniture obstacle seriously affects the ability of the assault element to reach points of domination.

(7) While clearing a room under less restrictive ROE, assault elements enter and, concentrating on areas of the room that are possible enemy positions, engage those positions with direct fire. This method of engaging possible enemy positions is dependent upon the ROE and is not usually used when the ROE are more restrictive.

R-24, Frangible Ammunition: In some instances, to prevent the possibility of fratricide or injury to friendly inhabitants, consider the use of 5.56-mm and 7.62-mm Controlled Penetration Ammunition (CPA) "Soft Round", which will penetrate human bodies/walls and then stop either in the body or in the wall.

WARNING

Because frangible ammunition disintegrates upon impact with any surface harder than the projectile itself, safety glasses should be worn to protect eyes from fragments.

NOTE: The use of frangible ammunition will prevent firing through objects (furniture, walls, etc.). This could place the unit at a severe disadvantage against an enemy not so equipped.

(7) Each clearing team member has a designated sector of fire that is unique to him initially but expands to overlap sectors of the other team members. This sector of fire includes the ceiling and the floor to look for firing loopholes and mouseholes.

(8) Team members enter the room.

(a) The first man enters the room, eliminating the immediate threat and has the option of going left or right or moving to one or two corners based on the size of the room, obstacles, and enemy situation (Figure 3-3). As the first man goes through the entry point, he can usually see one of the corners and can determine if there is an immediate threat. If so, he eliminates the threat and moves in that direction. If no immediate threat exists in that direction, he should consider buttonhooking to avoid

being shot in the back. However, the buttonhook may cause him to hesitate in the breach (entry) point and there is some concern that a prepared enemy will shoot through the wall at the remainder of the assault team as he tracks and fires at the first man to enter.

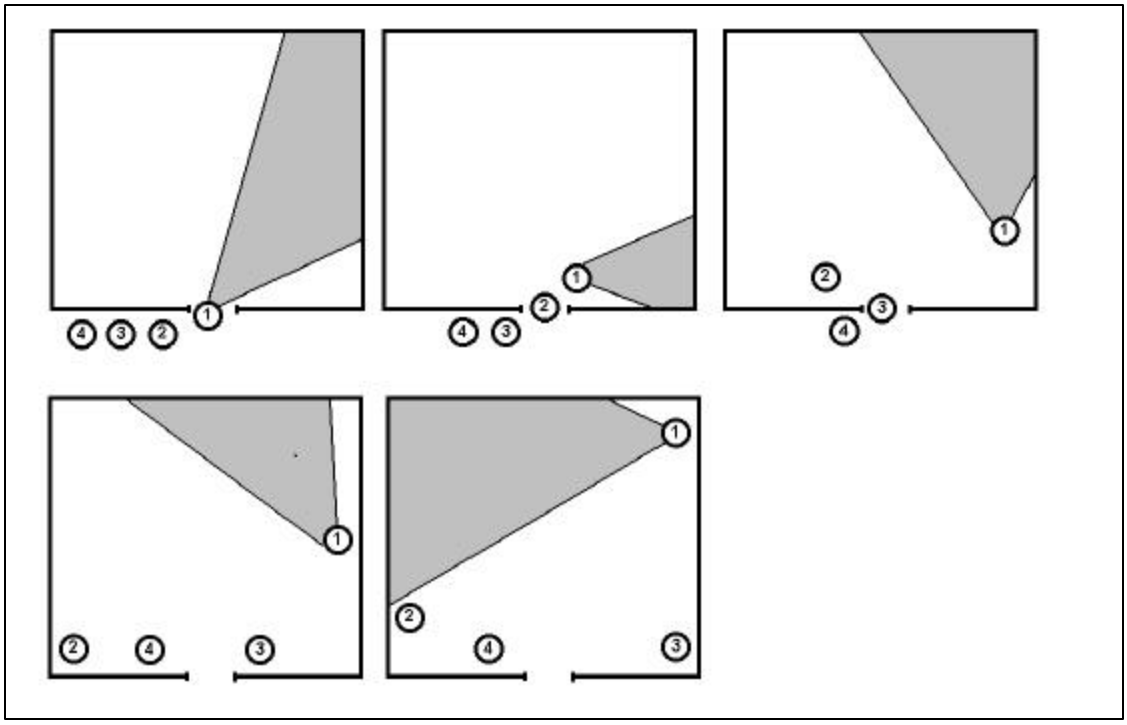


Figure 3-3. Path of number one man, center entry point.

(b) The second man moves in the opposite direction, following the wall, staying out of the center (Figure 3-4). The first and second men must clear the entry point, clear the immediate threat area, clear their corner, and move to a dominating position on their side of the room.

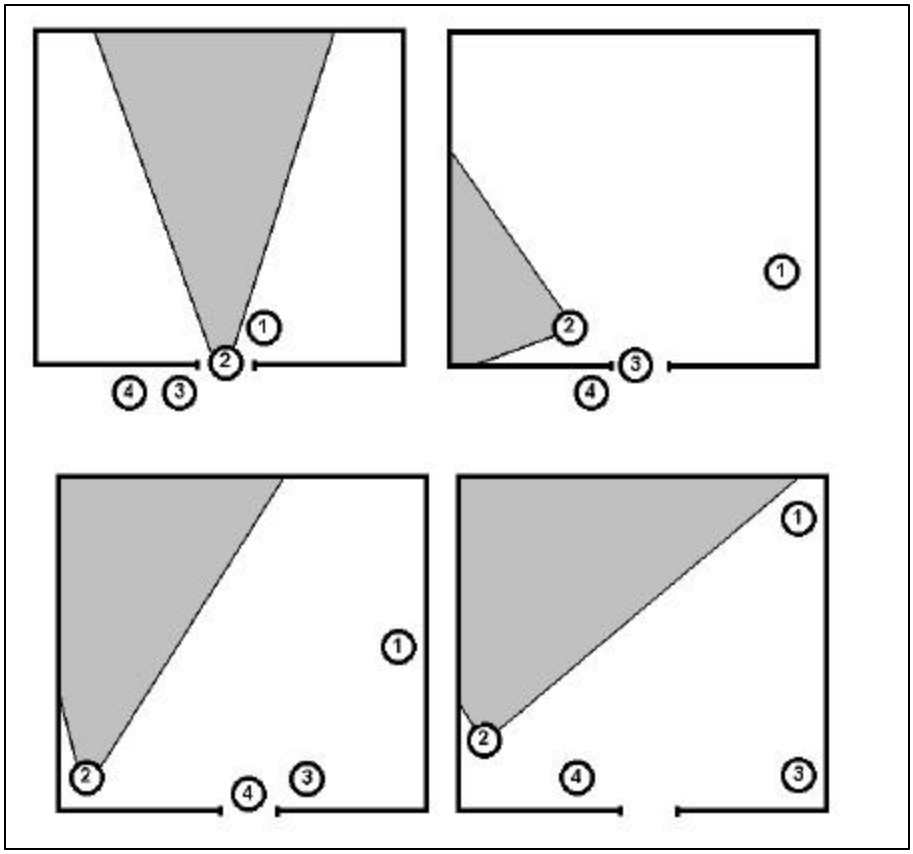


Figure 3-4. Path of number two man, center entry point.

(c) The third man will simply go opposite of the second man inside the room at least one meter from the entry point and move to a position which dominates his sector (Figure 3-5).

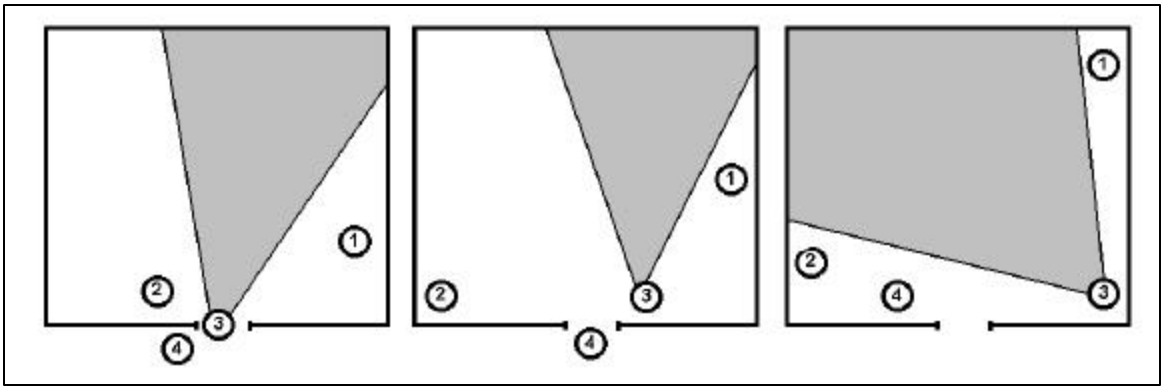


Figure 3-5. Path of number three man, center entry point.

(d) The fourth man will move opposite of the third man and move to a position that dominates his sector (Figure 3-6).

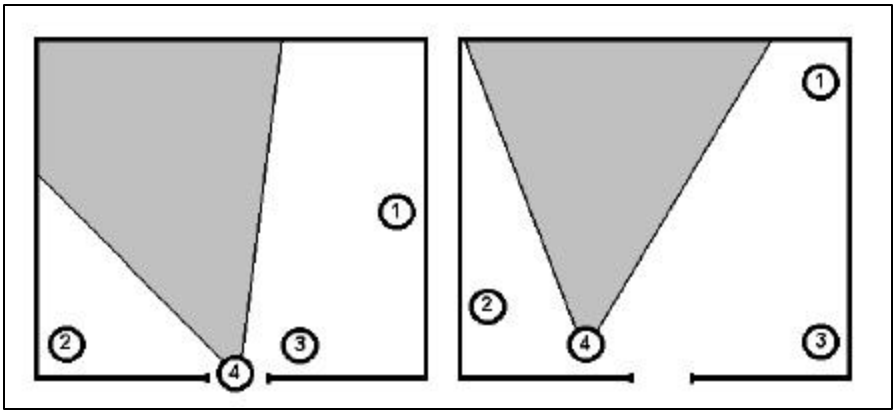


Figure 3-6. Path of number four man, center entry point.

(e) On order, any member of the team may move deeper into the room overwatched by the other team members.

(f) All team members stop movement only after they have cleared the entry point and reached their points of domination. Points of domination should not be in front of doors or windows so that team members are not silhouetted to the outside of the room. No movement should mask the fire of any of the other team members.

d. **Sectors of Fire.** Sectors of fire must be understood to make the assault work effectively (Figure 3-7). The number one man and the number two man are initially concerned with their immediate threat zone, then the area along the wall on either side of the entry point. The immediate threat zone is classified as a threat within arm's reach or anyone else that must be eliminated to clear the doorway. This is also the path or direction in which they are moving. Once they have visually cleared to their first corner, the number one and number two men begin collapsing their sectors toward the center by sweeping their muzzles to the far corner and stopping their sector collapse at a limit of fire one meter from the muzzle of the opposite man. The numbers three and four men clear their immediate threat and start at the center of the wall opposite their point of entry and sweep to the left if moving toward the left or to the right if moving toward the right. Numbers three and four stop their sweeps short of the respective team member (numbers one or two men).

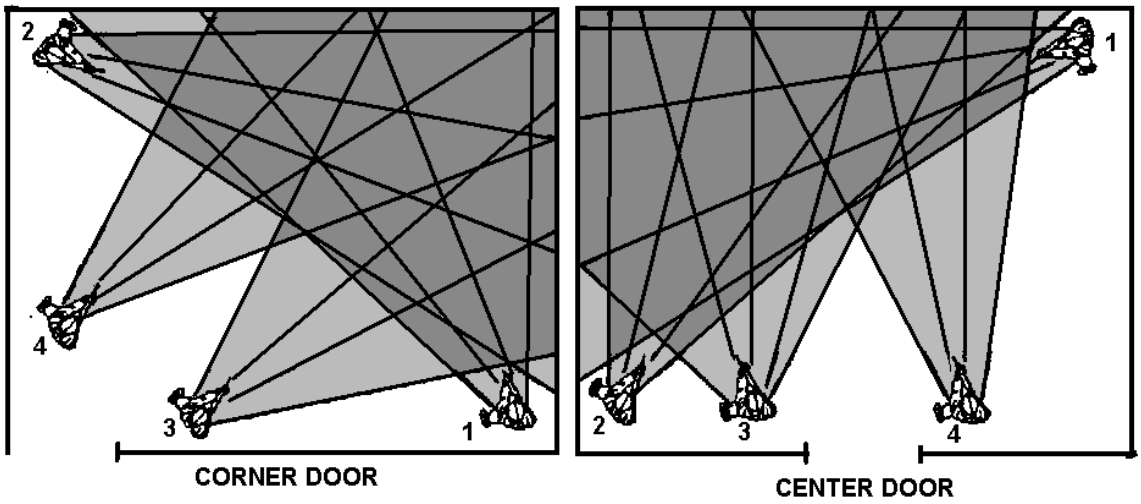


Figure 3-7. Points of domination and sectors of fire (four-man team).

e. **Clearing With Less Than Four-Man Elements.** At times, the assault element may be confronted with a short room or casualties reduce the assault element to less than four soldiers. Figures 3-8 through 3-11 show the points of domination for two and three man clearing teams

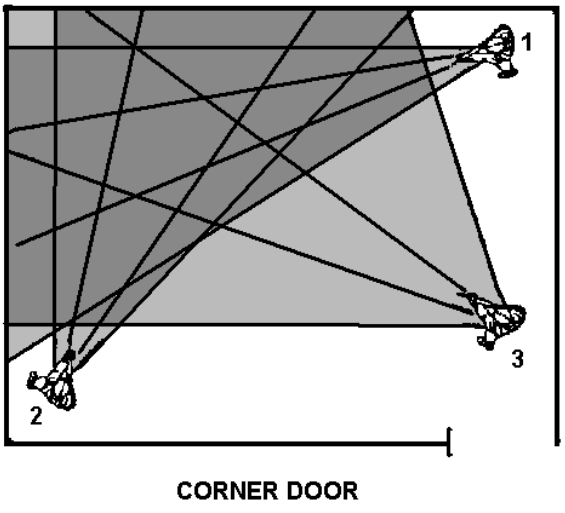


Figure 3-8. Points of domination and sectors of fire (three-man team, corner entry point).

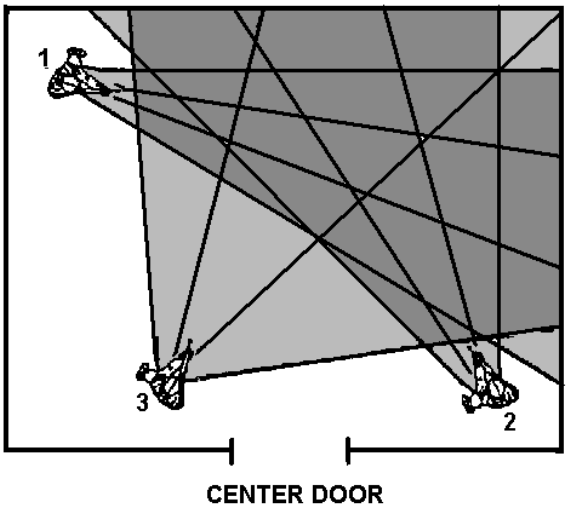


Figure 3-9. Points of domination and sectors of fire (three-man team, center entry point).

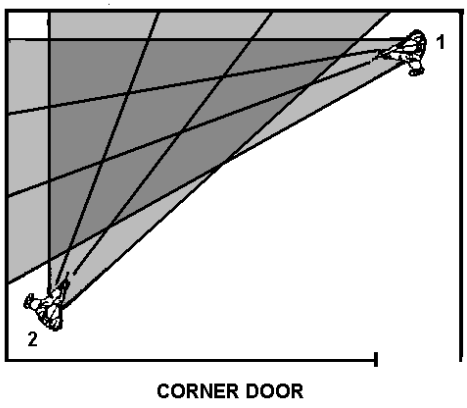


Figure 3-10. Points of domination and sectors of fire (two-man team, corner entry point).

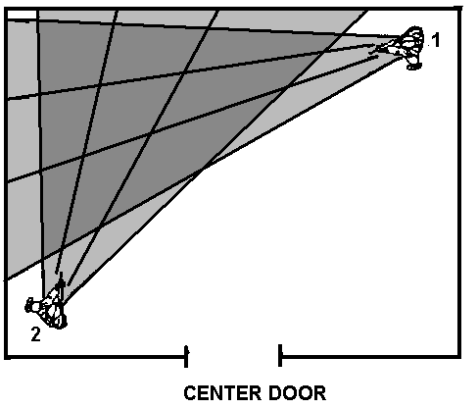


Figure 3-11. Points of domination and sectors of fire (two-man team, center entry point).

f. **Hallways.** The squad leader will maneuver his squad as fire teams for a mission such as movement through a hallway. However, there might be times when the best organization would be to break fire teams into two 2-man buddy teams. The size and length of hallways will determine how the squad moves. Movement in hallways is similar to movement down streets and alleys and in subterranean passageways.

R-5B, Intelligence Collection/Dissemination: Leaders should consider the use of an Unmanned Ground Vehicle (UGV) for reconnaissance of the inside of tunnel systems, buildings, and other objective areas. This will allow reconnaissance of the objective area without the enemy learning the strength, location, or intentions of the main element.

(1) ***Providing security.*** Team members provide three-dimensional and 360-degree security at the entry point and to the rear, laterally down corridors, and upward if near stairs or landings. There are three formations used for moving through hallways. These formations can use any of the three techniques of movement (traveling, traveling overwatch, and bounding overwatch).

- The squad can move with fire teams in one of the formations shown below in a traveling technique of movement.

- The squad can move with fire teams trailing two men in a traveling overwatch technique while maintaining 360-degree security. This requires the four-man fire teams to transition into two 2-man buddy teams.

- The squad can move with the lead fire team being overwatched by the other fire team while it moves, using the bounding overwatch technique. If the fire team conducts bounding overwatch within its own team, it would require the four-man fire team to transition into two 2-man buddy teams.

(2) ***Formations.*** There are several formations for fire teams that may be useful in moving through hallways and subterranean passageways. These formations may also be useful in small streets or alleys. They allow complete 360-degree and three-dimensional security.

(a) ***Cross cover formation.*** This formation is used when the lead fire team is moving down a hallway or passageway and the second fire team or security element is covering the rear of the lead element. The numbers one and two men move down the hallway abreast providing security to the immediate front on opposite sides of the hallway. The number three and four man move abreast of each other to the rear and inside of the two men providing security to the front far down the hallway (Figure 3-12).

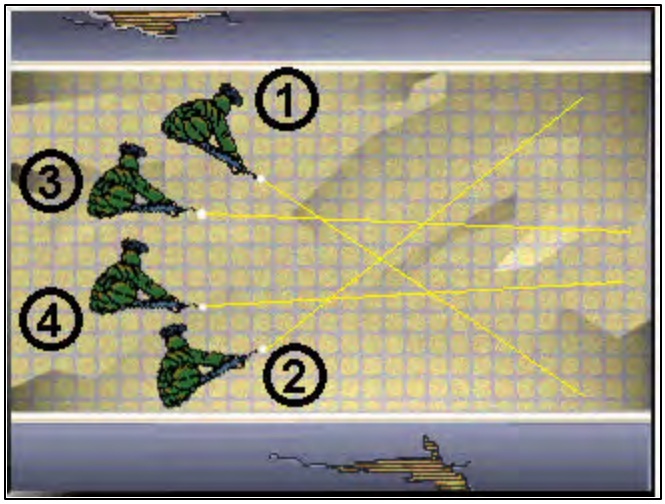


Figure 3-12. Cross cover formation.

(b) ***Serpentine formation.*** This formation is used when the fire team is in the traveling technique or being overwatched by another element. The serpentine technique is used in narrow hallways or passageways. The number one man provides security to the front. His sector of fire includes any enemy soldiers who appear at the far end of the hall or from any doorways near the end. The number two and number three men cover the left and right sides of the number one man. Their sectors of fire include any soldiers who appear suddenly from nearby doorways on either side of the hall. They cover the number one man's flanks. The number four man provides rear protection against any enemy soldiers suddenly appearing behind the clearing team. If the remainder of the squad is providing security for this fire team, it will not have to provide its own rear

security and the number four man can face forward, although his fires will be masked by the rest of the fire team (Figure 3-13).

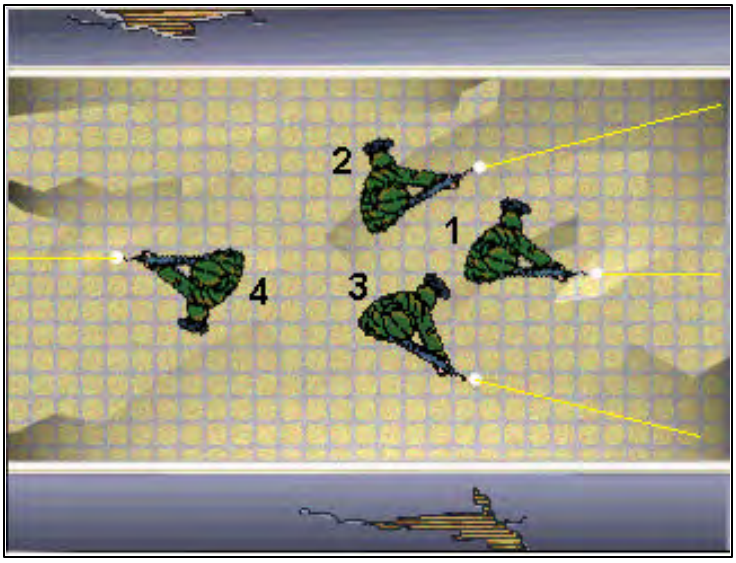


Figure 3-13. Serpentine formation for narrow hallways.

(c) ***Rolling-T formation.*** The formation is used when the fire team is in the traveling technique or being overwatched by another element. The rolling-T technique is used in wide hallways. The number one and number two men move abreast, covering the opposite side of the hallway. The number three man covers the far end of the hallway from a position behind the number one and number two men, firing between them. Once again, the number four man provides rear security. If the remainder of the squad is providing security for this fire team, it will not have to provide its own rear security and the number four man can face forward, although his fires will be masked by the rest of the fire team (Figure 3-14).

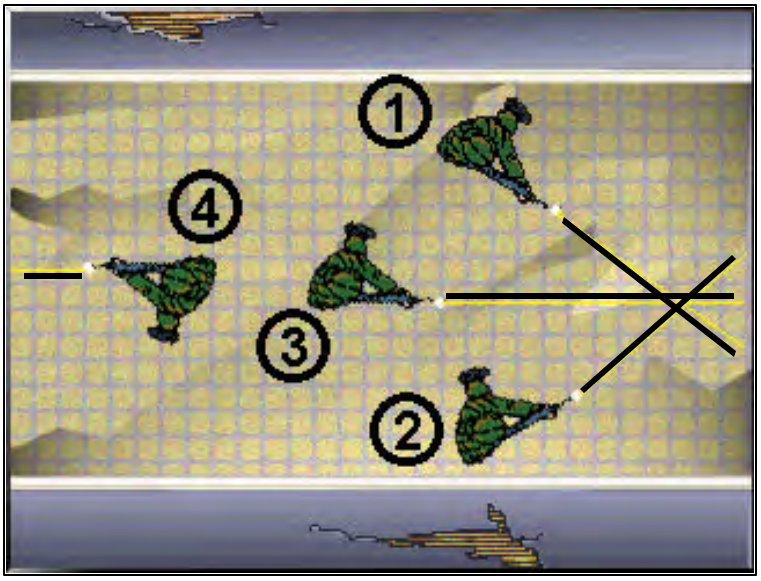


Figure 3-14. Rolling-T formation for wide hallways.

(3) ***Hallway Intersections.*** Hallway and passageway intersections are danger areas and should be approached cautiously. If the unit is clearing the building, connecting hallways and rooms off of hallways should not be bypassed because this potentially leaves enemy to the rear of the unit. If the decision has been made to move through the hallway without clearing every room and connecting hallway or passageway, the squad moves past entry points such as corners or intersections:

(a) Using an assault element to treat it as a danger area.

OR

(b) The assault element leader or a designated soldier may observe around the corner.

OR

(c) The squad leader elects to use a single fire team or both fire teams to move around the corner or T-shaped intersection in order to proceed in that direction. A sample technique for a fire team to move around a corner is detailed below (Figure 3-15):

- The number one man squats down to a low position and observes around the corner.

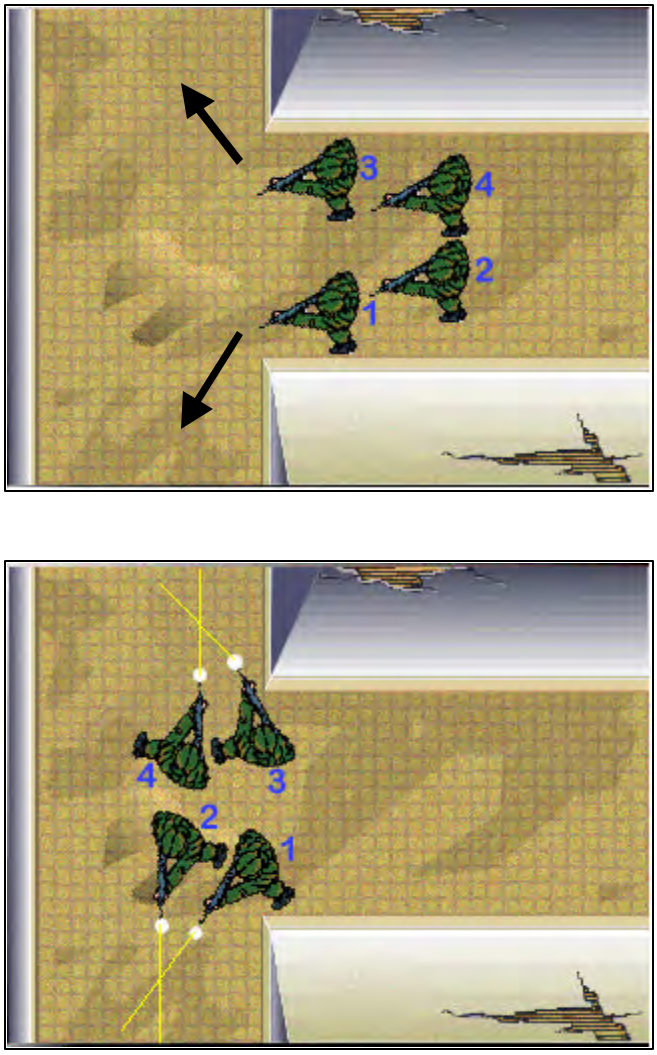


Figure 3-15. Hallway intersection clearing positions and sectors of fire.

- The number two man moves up to a high position and observes around the corner while looking over the number one man.
- The number three man steps out and pulls frontal security.
- The number two man lets the number one man know that he is ready.
- The number one man steps off and the number two man does the same simultaneously.

- The sectors of fire are split down the hallway. The number one man secures the far side and the number two man secures the near side.
- After the sectors are cleared, the fire team moves down the hallway.
- The unit continues movement using hallway movement techniques.

NOTE: A T-shaped hallway or passageway entry may be cleared in the same manner, using one or two fire teams (Figure 3-16).

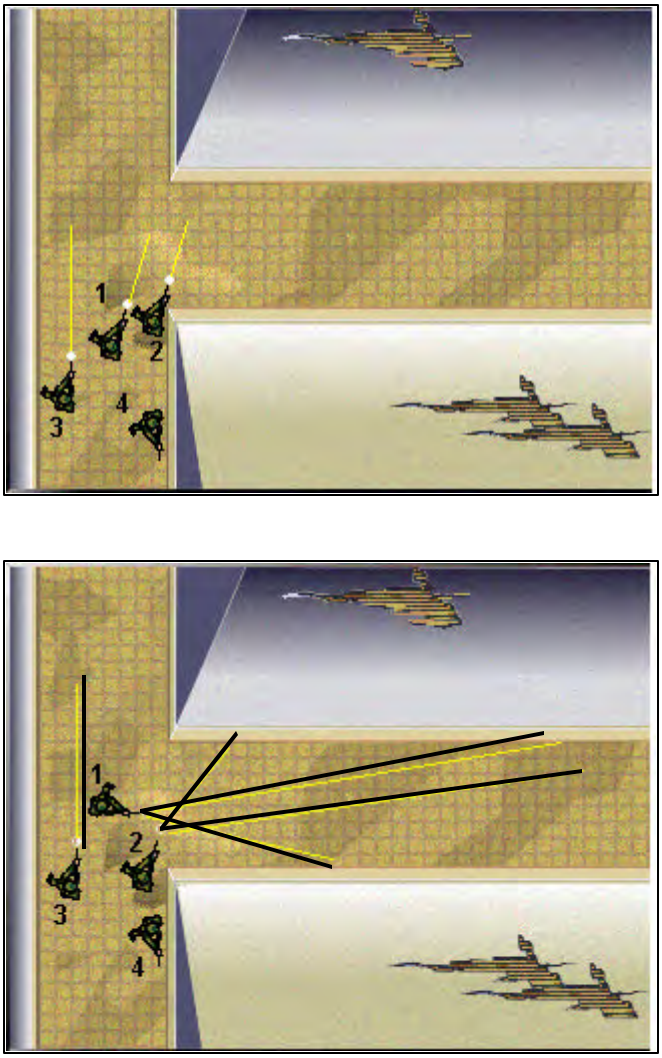


Figure 3-16. T-shaped hallway intersection clearing positions.

(d) ***Doorways.*** Doors are not normally bypassed while clearing. If the unit is moving, however, and has made the decision to bypass, doorways are treated like danger areas and are cleared in a similar manner as are hallway intersections.

g. **Staircases.** The squad leader ensures that 360-degree and three-dimensional security is maintained in the immediate vicinity of the staircase, then organizes his squad's order of movement and selects the movement technique to move through the staircase. Although the terrain of stairs in an urban environment is different than the terrain of a wooded environment, the unit must be adhered to the fundamentals of movement, individual and collective. The unit must gain and maintain momentum. Absolute security may be sacrificed for speed and in this case, speed may be a form of security as the enemy may not be able to react. All existing cover must be utilized. Leaders base their selection of a particular movement technique on the likelihood of enemy contact and the requirement for speed. The following focuses on movement up a staircase at the team level. However, most staircases will require two teams. The squad leader must decide when to rotate teams. The team leaders maneuver the teams up or down a staircase, maintain control and 360-degree and three-dimensional security, and, when faced with it, eliminate the threat. Critical tasks the team must accomplish are to:

- Maintain the momentum of the movement while not moving faster than the ability to accurately engage targets if they appear.
- Move to points of domination and establish security.
- Consolidate and reorganize.

(1) ***Organizations for movement.*** Although the fire team can move up or down a staircase using any of several methods while using the basic fundamentals of movement and security, two methods of movement in a staircase that could be employed are the fire team flow and the buddy team flow. The term “inside of a flight of stairs” means that portion of the staircase closest to the center in the type of staircase with multiple landings. It is normally the position in the staircase from which you can see the smallest amount of the landing above. Similarly, the “outside” would be that portion of the stairs farthest from the center in the type of staircase with multiple landings and from which you can see the largest amount of the landing above. It is normally next to the wall. In a single-flight of stairs, the “outside” would be that portion from which you could see most of the landing above (Figure 3-17).

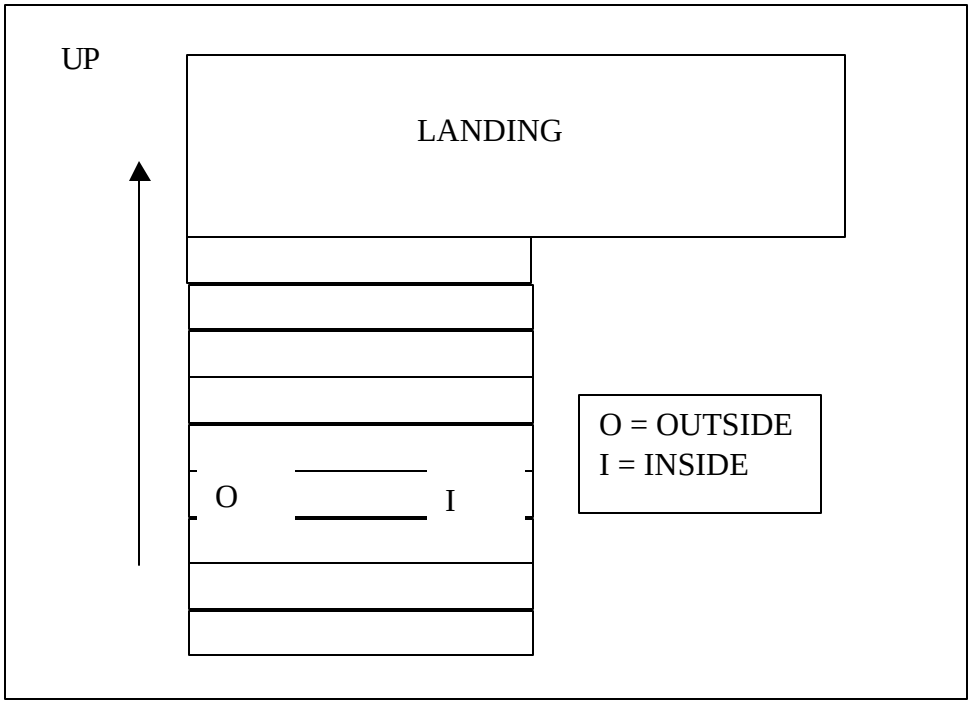


Figure 3-17. Inside and outside of a flight of stairs.

(2) ***Fire team flow***. The fire team moves using all four members at the same time in a continuous movement. The team members rotate through positions while moving up or down stairs. The fire team flow (Figures 3-18 and 3-19) technique of moving in a staircase consists of a consistent flow up or down the staircase. The direction from which the unit comes has an impact on the first man to provide security in the staircase. In the example illustrated below, the unit enters the staircase from the left.

(a) The number four man moves to the outside of the flight of stairs at the bottom and pulls security to the highest point that he can engage on the landing immediately above.

(b) The number one man moves to the inside of the flight of stairs at the bottom and pulls security to the highest point that he can engage.

NOTE: The above two positions would be reversed if the staircase were entered from the right or if the staircase turned in the opposite direction.

(c) The number two man moves forward on the inside of the staircase where he turns around and moves backwards up the staircase to a point at which he can see and engage the next landing. Simultaneously, the number three man moves up the staircase

on the outside with the number two man and engages the threat on the immediate landing. Numbers two and three continue to move up to the next landing.

(d) The number four man moves up the staircase with the number one man, and on a prearranged signal, the number three man turns around to engage the next landing.

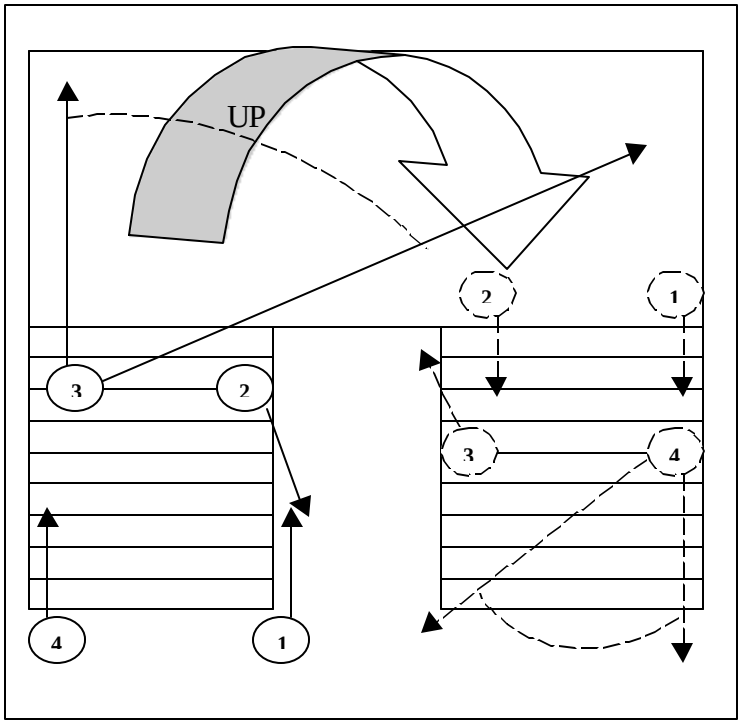


Figure 3-18. Fire team flow method of clearing staircases.

(e) The flow continues with the number two man picking up the sector that the number one man had. The number three man picks up where the number two man was. The number four man picks up where the number three man was. The number one man picks up where the number four man was.

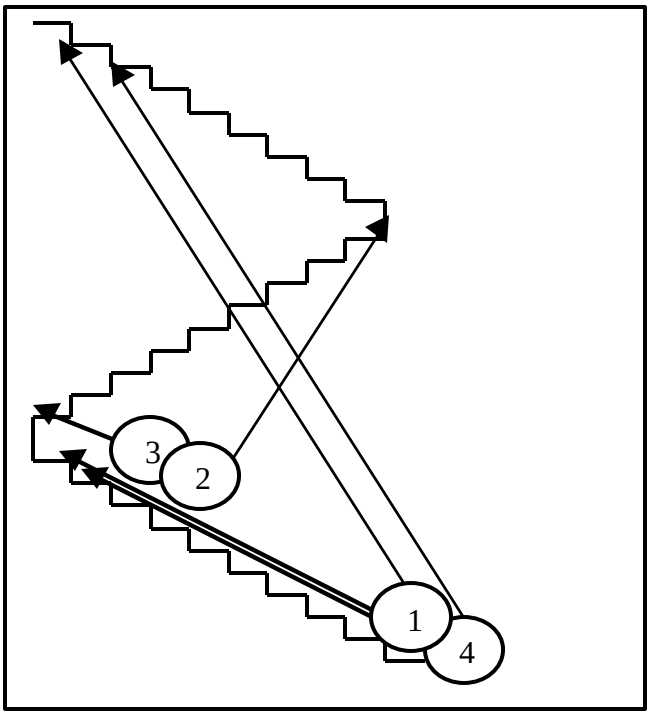


Figure 3-19. Fire team flow.

(3) ***Buddy-team flow***. The buddy team flow is similar to movement of units in open terrain. The fire team is broken down into two two-man buddy-teams and they can move using the three movement techniques depending upon the situation. Within a fire team, the team leader and the automatic rifleman normally form one buddy-team, and the grenadier and a rifleman form the other buddy-team. If necessary, as one buddy-team moves, it is covered by the other buddy-team of the fire team. In case of entry into the staircase from the left, the buddy-team flow technique consists of:

(a) The number one man moves to the inside of the flight of stairs at the bottom and pulls security to the highest point he can engage. He uses the staircase for cover.

(b) The number two man moves next to the number one man on the outside of the flight of stairs and secures to the highest point he can engage.

NOTE: The above sequence will be reversed if entrance to the staircase is from the other direction.

(c) Both numbers one and two men, being covered by the trailing buddy-team, move up the stairway. The man on the inside of the staircase turns 180 degrees to secure above to the next floor landing. He may have to walk backwards up the stairs to the most immediate landing in order to secure above to the next landing.

(d) The other man continues to move up the staircase and clears to the front of both soldiers. Once the front has been cleared on the most immediate landing, he will also turn around 180 degrees until reaching the next landing. The soldiers stop at the next landing and/or continue forward. If directed, the buddy-team could bound with the trailing buddy team, either successive or alternate bounds (Figure 3-20).

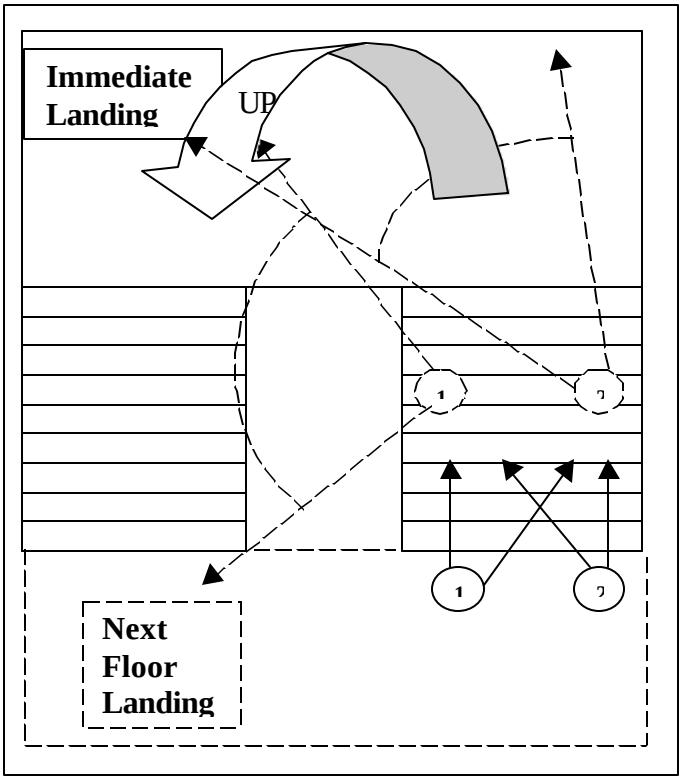


Figure 3-20. Buddy team flow technique.

(4) **The 3-Man Technique.** If the two techniques above are not suitable or the stairs are wide enough and can support this organization, leaders must consider the 3 man clearing team. A full squad can be organized into three 3-man teams. An example of when this organization would be beneficial: A platoon is tasked to clear a multi-story building. The breach point is located on the ground floor. After the assault element has breached and entered, a squad is tasked to pass through this element, enter and clear the staircase, leaving security on each landing. Then another squad is tasked to move up the secured staircase and pass through to begin clearing the building from the top down. The squad assigned the task of clearing the staircase may utilize this organization. If the squad must maintain the security of every access to the staircase (each floor landing), the squad can expect to clear and maintain only three floors. Further clearance will not be possible due to lack of personnel unless the squad leader reorganizes while on the move. For instance, once a three-man team secures a landing, and the remainder of the squad

continues to clear the staircase, one of the soldiers left to secure the landing leaves the landing to get back into the clearing flow. This would leave two men to secure the previous landing and allow the squad to clear further along the staircase to the fifth floor. The security of each landing can be assigned or passed off to other elements, freeing the clearing squad to focus only on clearing the staircase. Any bounding technique can be used to maintain combat effectiveness of the lead elements.

1. The 3-man technique consists of: The first two soldiers would enter the staircase the same way as in the buddy-team flow. The third soldier would be in between the buddy-team and slightly to the rear (Figure 3-21). This third soldier would have the option of orienting his weapon either to the front as does the second soldier, or to the rear as does the first soldier.

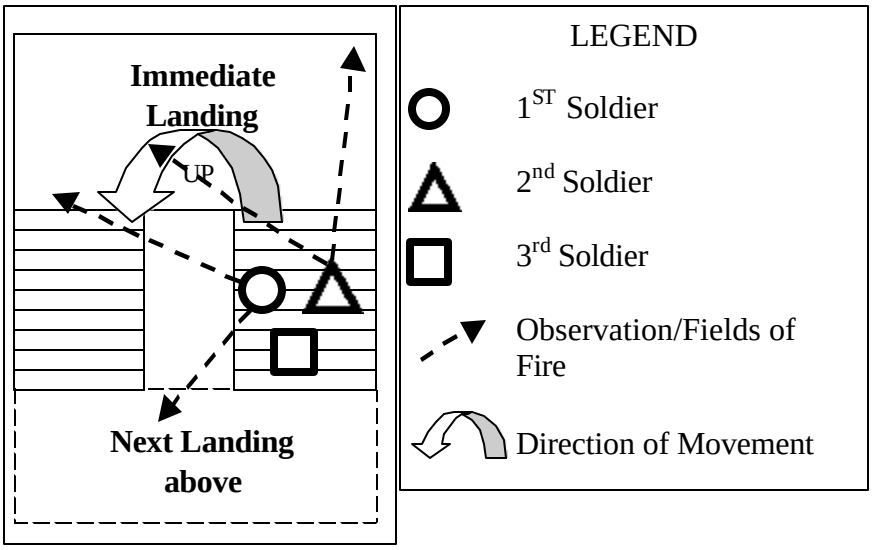


Figure 3-21. Three-man staircase clearing formation.

2. Several advantages to this formation are:

- An additional weapon can engage in the event of contact with the enemy.
- The leader can be a member of this three-man clearing formation, better controlling the clearing and maintaining situation awareness.

3. Several disadvantages to this formation are:

- The third soldier has limited fields of fire due to being behind the buddy team.
- This formation places a larger target to the enemy (three men in close proximity in the close confines of the staircase).

(5) ***Reaction to enemy action in staircases.*** The above techniques are strictly for movement. Enemy contact will have to be treated as is enemy contact in open terrain. Leaders will have to determine whether a bold assault will clear the staircase or whether supporting weapons or maneuver of another unit will be appropriate to clear the staircase.

(6) ***Movement down staircases.*** Movement down staircases may be essentially the same as movement up staircases except that men in the unit do not have to turn around to provide security to multiple landings above since those are already secured.

(7) ***Reaction to grenades in staircases.*** The reaction of soldiers to a grenade in a staircase must be instantaneous. The natural reaction when encountering a grenade while moving up stairs is for all soldiers to try and move down the stairs to get away from the grenade. This is usually the worst reaction and soldiers have to be trained to overcome their natural tendencies. Considerations are:

- Location of the grenade.
- Location of soldiers in the staircase.
- Whether the grenade is bouncing down the stairs or lands and remains stationary.
- Movement speed of the grenade and the soldiers in the staircase.

(a) Under no circumstances should a soldier higher on the staircase than the grenade attempt to move down the staircase past the grenade.

(b) If the grenade lands on the stairs or landing and remains stationary, soldiers should attempt to move above or below its bursting arc (Figure 3-22).

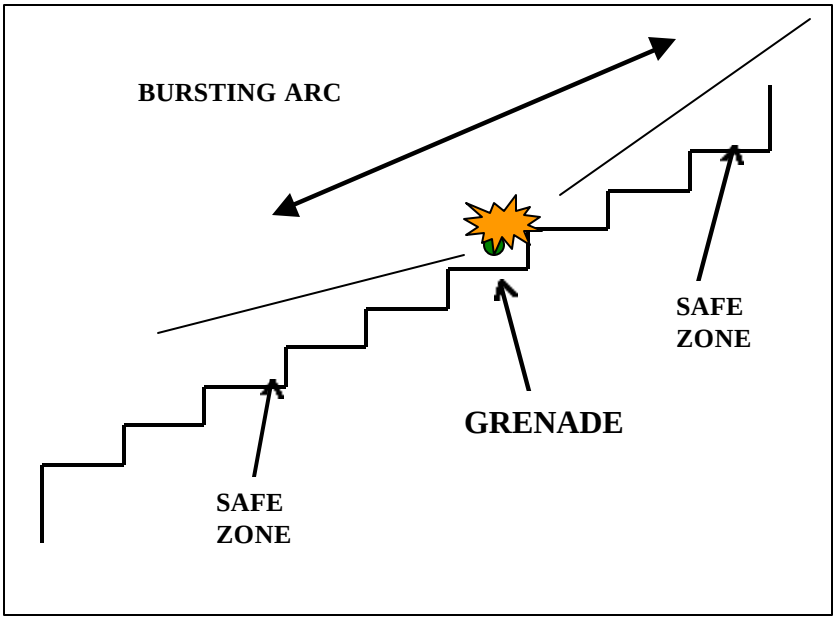


Figure 3-22. Grenade on a staircase.

(c) Generally, soldiers in the staircase should attempt to move up past a grenade that is bouncing down the stairs. This action may give some protection from the blast of the grenade and it may surprise the individual who threw the grenade, similar to assaulting into a near ambush. Movement must be rapid in order to escape the blast effects as well as to achieve surprise.

(d) Personnel further away from the grenade or at the bottom of the staircase should dive away from the grenade or seek the closest cover around the corner from the staircase.

(8) ***Use of grenades in a staircase.*** The use of grenades or distraction devices while clearing DOWN a staircase is highly recommended if the ROE permit. The use of fragmentation grenades while attempting to clear up a staircase is extremely hazardous and should only be attempted by units who have been able to practice this technique a lot.

DANGER

USE OF FRAGMENTARY GRENADES GOING UP A STAIRCASE IS DANGEROUS. FLASHBANG DEVICES OR OTHER TYPE GRENADES MAY BE SUBSTITUTED. SECURITY MUST BE KEPT ON THE AREA WHERE THE GRENADE IS THROWN. AT ALL TIMES, THE INDIVIDUAL THROWING THE GRENADE AND THE REST OF HIS ELEMENT SHOULD HAVE A PLANNED AREA TO MOVE TO FOR SAFETY IF THE GRENADE DOES NOT GO WHERE INTENDED. GRENADES SHOULD BE COOKED OFF TO ENSURE THAT GRENADES CAN NOT BE THROWN BACK BY THE ENEMY.

h. **Tunnel Clearing Operations.**

(1) ***Tunnel clearing tasks and equipment.*** The following lists the personnel, tasks, and equipment necessary to clear a tunnel. A possible reorganization is for a four-man team (with the team leader as the fifth man) which would participate in offensive subterranean operations. The advantage to this organization is that it allows the use of two-man buddy teams. In addition to a soldier's standard combat load, specific equipment each soldier should carry according to his assignment within the fire team is listed below. One member is assigned to carry tools needed for opening manhole covers.

R-5B, Intelligence Collection/Dissemination: Leaders should consider the use of an Unmanned Ground Vehicle (UGV) for reconnaissance of the inside of tunnel systems, buildings, and other objective areas. This will allow reconnaissance of the objective area without the enemy learning the strength, location, or intentions of the main element.

R-12, Personal Protection Equipment: To reduce the high rates of injury to elbows and knees due to hard surfaces encountered in built up areas, all soldiers are encouraged to wear Personal Protection Equipment.

CAUTION

Prolonged use of elbow and knee protection may cause discomfort to soldiers.

- Sketch of the tunnel system to include magnetic north, azimuths, distances, and locations of manhole covers.
- Respirators, if available.

- NVG with IR light
- Thermal viewing devices are ideal as they do not need ambient light.
- Flashlights, with filtered lens cover and IR if possible.
- Chicken wire wrapped around boots to improve footing (if needed).
- Safety rope attached to each man.
- Marking devices such as chalk, IR chem lights, and so on.

R-24, Frangible Ammunition: In some instances, to prevent the possibility of fratricide or injury to friendly inhabitants, consider the use of 5.56-mm and 7.62-mm Controlled Penetration Ammunition (CPA) "Soft Round" which will penetrate human bodies/walls and then stop either in the body or in the wall.

WARNING

Because frangible ammunition disintegrates upon impact with any surface harder than the projectile itself, safety glasses should be worn to protect eyes from fragments.

NOTE: The use of frangible ammunition will prevent firing through objects (furniture, walls, etc.). This could place the unit at a severe disadvantage against an enemy not so equipped.

(a) *Lead man/scout.*

1. Tasks.

- Makes initial entry into the tunnel.
- Clears the route by use of a tripwire feeler.
- Stays about 10 meters in front of the team leader.
- Opens manhole covers along the route to confirm location.

2. Equipment.

- Chemical agent alarm system (METT-T dependent).

- Respirator (if available).
- Tripwire feeler.
- Mirror on a pole or attached to a weapon, to look around corners. This can be constructed with a light source (IR or white light) for illumination.

(b) *Team leader.*

1. Tasks.

- Selects the route to be cleared.
- Navigates, to include checking the sewer map and pacing.
- Records the location, azimuth, and pace count throughout the mission.
- Provides security for lead man.
- Carries out communication checks.

2. Equipment.

- Map, compass, street plan, note book, and pen.
- Powerful hand held radios if available.
- Pace count beads.
- Respirator (if available).

(c) *Riflemen numbers 1 and 2.*

1. Tasks.

- Conducts communication checks.
- Checks pace count for team leader.

2. Equipment.

- Field telephone.

- Pace count beads.
- Respirator (if available).

(d) *Rifleman number 3.*

1. Tasks.

- Provides rear security.
- Marks the route.
- Reels out the WD-1; ensures it stays unsnagged.

2. Equipment.

- Material for marking the route, such as chalk or spray paint.
- RL-39.
- Respirator (if available).

(2) ***A Technique for tunnel clearing.*** Tunnel clearing should be broken down into 4 phases.

(a) *Phase 1 - Initial entry and securing of entry points.*

1. The unit leader reorganizes the unit based on the size of the tunnel. For many tunnels a two-man team is sufficient. Ideally, a four-man team would give more security and flexibility. Additional teams can enter the tunnel as the clearance progresses. In the event of an explosion underground, the extreme effects of the blast make it necessary to use the minimum number of men below ground.

2. The unit moves to the entrance to the tunnel and secures the area. The leader signals for the cover to be removed. When possible, no entry should be made for 15 minutes. This allows the gases to dissipate and allows detection of enemy presence.

R-5B, Intelligence Collection/Dissemination: Leaders should consider the use of a Unmanned Ground Vehicle (UGV) for reconnaissance of the inside of tunnel systems, buildings, and other objective areas. This will allow reconnaissance of the objective area without the enemy learning the strength, location, or intentions of the main element.

3. If the need arises, a stun or fragmentation grenade can be dropped in as the cover is removed. This will, however, alert the enemy of the unit's intentions or could cause noxious gases to ignite.

4. If time allows, after the 15 minutes has expired, the lead man drops down inside the tunnel. The lead man fires his weapon only if a target is identified.

5. The lead man must attempt to represent as small a target as possible. He can accomplish this by keeping his back to a wall and crouching.

6. The lead man checks to determine whether the air is breathable and how much the size of the tunnel restricts movement. He should remain in place ten minutes before the rest of the unit follows. This allows him to adjust to the subterranean environment. If he becomes ill or gets into trouble, pulling on the safety rope can retrieve him.

7. Once the lead man has identified that the area is clear, he signals the unit leader to enter.

(b) *Phase 2 - Clearance of tunnels.*

1. The lead man moves 10 meters in front of the team leader. Other team members maintain 5-meter intervals (depending on factors such as water flow speed, if present). If water is present, and the flow is greater than 2.5 meters per second, or if the footing is slippery, the interval could be increased.

2. If the tunnel is large enough, the team clears it the same as a hallway, using the same techniques of movement.

3. The rest of the squad secures the entry point and maintains communications with the team in the tunnel.

4. The unit clears blind corners and intersections (preferably, grenades should not be used below ground, particularly in very confined underground spaces).

(c) *Phase 3 - Junctions.* Junctions can prove to be a complex problem and due to the nature and variety of junctions no hard and fast drill can be adopted. Generally

only one tunnel should be cleared at a time, and once cleared, each new tunnel should have a sentry posted to secure it.

1. One man can use a pole with a right angle light and mirror to look around the corner. If an enemy is present, the light will serve to draw fire and white-out image intensifiers.

R-5B, Intelligence Collection/Dissemination: Leaders should consider the use of an Unmanned Ground Vehicle (UGV) for reconnaissance of the inside of tunnel systems, buildings, and other objective areas. This will allow reconnaissance of the objective area without the enemy learning the strength, location, or intentions of the main element.

2. If no enemy is seen or no fire returned, the light is extinguished and the first man then takes up position at the corner and uses his light and weapon to observe the tunnel. If the tunnel is still clear, the light is extinguished and the second man moves to the far wall and takes up a fire position while the first man covers from the junction. When ready, the second man illuminates the tunnel and engages any targets seen.

3. If nothing is seen, the second man then moves forward keeping to the far side of the tunnel so that the first man can support by fire.

(d) *Phase 4 - Exit*. The unit exits the tunnel.

1. The unit exits the tunnel at a new position with as much stealth as possible.

2. One man covers from the tunnel exit while another reconnoiters its immediate area.

3. Once the area is cleared, it must be secured immediately.

4. The remainder of the unit exits the tunnel.

3-7. CONSOLIDATION AND REORGANIZATION

Consolidation occurs immediately after each action, whether it be the platoon conducting an assault on a building or a fire team moving up a staircase. Consolidation is security and allows a unit to prepare for counterattack and to facilitate reorganization. Consolidation of the unit in an urban environment must be quick in order to repel enemy counterattacks and to prevent the enemy from infiltrating back into cleared buildings or floors. After securing a floor (bottom, middle, or top), selected members of the unit are assigned to cover potential enemy counterattack routes to the building. Priority must be given initially to securing the direction of attack. Security elements alert the unit and place a heavy volume of fire on enemy forces approaching the unit. Reorganization

occurs after consolidation. These actions prepare the unit to continue the mission. Many reorganization actions occur simultaneously.

a. **Consolidation Actions.** Squads assume hasty defensive positions immediately after the objective has been seized or cleared. Squads which performed missions as assault elements should be prepared to assume an overwatch mission and to support another assault element. Units must guard:

- Enemy mouseholes between adjacent buildings.
- Covered routes to the building.
- Underground routes into the basement.
- Approaches over adjoining roofs.

b. **Reorganization Actions.** After consolidation, the following actions are taken:

- Resupply and redistribute ammunition.
- Mark the building to indicate to friendly forces that the building has been cleared.
- Treat and evacuate wounded personnel.

R-14B, Personal Protection Kit Version B: To prevent spreading contaminant infections, soldiers should use protective gloves and masks to administer first aid to noncombatants and prisoners of war.

- Treat and process EPWs.

R-35, Personnel Restraints: Soldiers can carry and use small and easily portable (in a pocket) restraint devices, to control civilian detainees or captured military personnel.

- Segregate and safeguard noncombatants.
- Re-establish the chain of command.

3-8. CONTINUATION OF THE ASSAULT MISSION

If the unit is going to continue in an assault mission or receives a new assault mission, the following must take place immediately:

- The unit cannot lose the momentum. This is a critical factor in clearing operations. The enemy cannot be allowed to move to its next set of prepared positions or to prepare new positions.

- The support element pushes replacements forward to the assault element.

- Security for already cleared areas must be taken up by the support element or by another unit.

- The support element must displace forward to ensure that it is in place to provide support to the assault element such as isolation of the new objective.

CHAPTER 4
DEFENSE

4-1. GENERAL CONSIDERATIONS

Planning the defense begins when the leader receives a mission or determines a requirement to defend as during consolidation and reorganization after an assault. The leader must use terrain wisely and designates a point of main effort. He chooses defensive positions that force the enemy to make costly attacks or conduct time-consuming maneuvers to avoid them. A position that the enemy can readily avoid has no defensive value unless the enemy can be induced to attack it. The defense, no less than the offense, should achieve surprise. As platoon leaders conduct their troop leading procedures, they also have to consider noncombatants, ROE, limited collateral damage, and coordination with adjacent units to eliminate the probability of fratricide. Maneuver, methods, and courses of action in establishing defensive positions in and around urbanized terrain are METT-T intensive. In built-up areas, buildings provide cover and concealment, limit fields of observation and fire, and block movement of troops, especially mechanized troops. This section covers the key planning considerations, weapons selection, preparations, and the construction of a platoon defensive position on urbanized terrain.

4-2. PLANNING THE DEFENSE

Most reasons for defending in a built-up area are focused on retaining terrain. The platoon will either be given a sector to defend or a battle position to occupy and the platoon leader must construct his defense within the constraints given to him. In a built-up area, the defender must take advantage of the abundant cover and concealment. He must also consider restrictions to the attacker's ability to maneuver and observe. By using the terrain and fighting from well-prepared and mutually supporting positions, a defending force can inflict heavy losses on, delay, block, or fix a much larger attacking force.

a. Forces can be concentrated in critical areas. Due to the tactical advantages to the defender, a well-trained force defending a built-up area can inflict major losses on a numerically superior attacker.

b. Forces can be well concealed in built-up areas. Aerial photography, imagery, and sensory devices have difficulty detecting forces deployed in cities. Combat forces that are well emplaced in built-up areas are hard to detect.

R-5A, Intelligence Collection/Dissemination: Leaders should consider the use of an Unmanned Aerial Vehicle (UAV) for overflight mapping and reconnaissance of an area. This may assist in determining improperly camouflaged positions.

c. Streets are usually avenues of approach. However, forces moving along streets are often canalized by the buildings and have little space for maneuver. Thus, obstacles on streets in towns are usually more effective than those on roads in open terrain since they are more difficult to bypass.

d. Subterranean systems found in some built-up areas are easily overlooked but can be important to the outcome of operations. They include subways, sewers, cellars, and utility systems. These routes allow defensive forces to move undetected. Deny the enemy the use of these routes to bypass defensive positions through subterranean defensive positions and ambushes.

e. Organize the defense of a built-up area around key terrain features, buildings, and areas that preserve the integrity of the defense and that provide the defender ease of movement. The organization of the defense of built-up areas at platoon level is METT-T and ROE dependent. Organize and plan the defense by considering obstacles, avenues of approach, key terrain, observation and fields of fire, cover and concealment, fire hazards, and communications restrictions. The platoon leader's planning starts when he receives the company warning order or OPORD. Actions prior to occupation are covered in FM 7-8, Chapter 2, Section V., Conduct of the Defense. Normal platoon and squad defensive operations are covered in FM 7-8. Additional actions that may be required in urban terrain include:

- Locating or creating a plan of the building

- Installing antennas on top of buildings and outside of buildings to prevent communications from being distorted. To keep antennas from standing out, mask them with present television and radio roof antennas.

R-3, NLOS Radio: Due to the line of sight (LOS) nature of unit TO&E FM radios and the decentralized nature of combat in urban terrain, consider the use of a NLOS radio for improved communication capabilities. This type of radio may also be able to provide the user with hands off capabilities, minimum body movement for operation, and remote channel/frequency changing. If fielded to each soldier, it may provide the capability of a unit "intercom".

NOTE: Because of their lack of secure capability, transmissions on these radios must be considered to being monitored by enemy forces, news media, and any entity with a minimum of technology. Transmissions must be characterized by the use of call signs, authentication, and prowords to transmit data.

f. The defender must search his area for noncombatants, to include fields of fire. If still in the area, remove noncombatants to a safe area. Those unwilling to depart may have to be forcibly removed.

R-35, Personnel Restraints: Soldiers can carry and use small and easily portable (in a pocket) restraint devices to control civilian detainees or captured military personnel.

g. One of the most common defensive tasks a platoon will be given is the strongpoint defense of a building, part of a building, or a group of small buildings (Figure 4-1). The platoon's defense is normally integrated into the company's mission (defense of a traffic circle and so forth). The platoon must keep the enemy from gaining a foothold in buildings. It makes the best use of its weapons and supporting fires, organizes an all-round defense, and counterattacks or calls for a counterattack to eject an enemy that has a foothold.

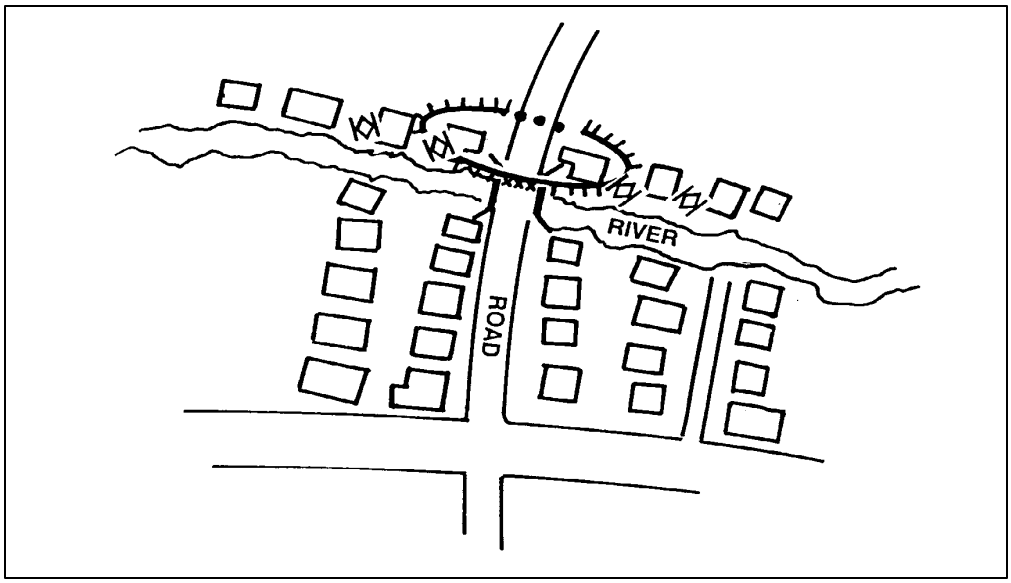


Figure 4-1. Defensive strongpoint.

(1) The platoon defense should be organized into a series of fighting positions located to cover avenues of approach, to cover obstacles, and to provide mutual support. Snipers may be located on the upper floors of the buildings. Unengaged elements should be ready to counterattack, fight fires, or reinforce other elements of the platoon.

(2) Depending on the length of the mission, the platoon should stockpile the following:

- Munitions (especially grenades).
- Food and water.

- Medical supplies.
- Firefighting equipment.

4-3. HASTY DEFENSE

A very likely defensive mission for the infantry platoon in urban terrain is to conduct a hasty defense. This mission is characterized by reduced time for the preparation of the defense. All of the troop leading procedures are the same. Many of the priorities of work of the deliberate defense will be the same but they may take place concurrently. Deploy units, emplace weapons, and prepare fighting positions in accordance with the amount of time available to the unit.

a. **Occupation and Preparation of Positions.** Preparations for the hasty defense will vary with the time available. The preparations described below will generally take between 2-4 hours. In a hasty defense, the primary effort is to camouflage and conceal the presence of the hasty fighting positions and provide as much protection as possible for the soldiers manning them. Fighting positions are constructed back from the windows in the shadows of the room using appliances, furniture, and other convenient items and materials. A hasty fighting position is normally occupied in the attack or the early stages of the defense. It is a position from which the soldier can place fire upon the enemy while using available cover for protection from return fire. The soldier may occupy it voluntarily, or he may be forced to occupy it due to enemy fire. In either case, the position lacks preparation before occupation. Some of the more common hasty fighting positions in a built-up area are corners of buildings, behind walls, windows, unprepared loopholes, and the peak of a roof. When firing from behind barriers such as walls or rubble, preferably fire around them; not over them (Figure 4-2). The emphasis on fortifying positions and making major alterations to the environment is reduced. These actions will occur after security has been established.

Figure 4-2. Firing around barriers.

(1) ***Position crew-served and special weapons.*** Generally, they will be employed from the inside of buildings, unless an outside position is preferable and can be protected and camouflaged.

(2) ***Emplace barriers and obstacles.*** Lack of time means there will be at most two belts established and they will not be as extensive as in a defense that permits more time.

(a) *First belt.* The first belt will usually be between 50-100 meters from and parallel to the defensive trace. It will normally consist of wire obstacles, improvised barriers, road craters, and minefields. Anti-tank and command-detonated mines will be used consistent with the ROE. This belt will impede movement, channelize the enemy, break-up attack formations, and inflict casualties.

(b) *Second belt.* The second belt is the denial belt. It has the same purpose and characteristics as described above.

(c) *Materials.* Employ field expedient obstacles made from cars, light poles, and other available materials. Mix dummy mines with real mines and place them inside sandbags. Cover all obstacles with observation and fire.

(3) ***Prepare individual positions.*** The following work sequence should be considered:

- Gather available materials to construct positions such as tables, dressers, and appliances.
- Construct a stable firing platform for the weapon.
- Build frontal and side protection with the material gathered. Ensure cabinets, dressers, end tables, and other furnishings are filled with materials to stop small arms fire.
- Do not disturb firing windows. Curtains and other aspects of the original setting are components of camouflage.
- Construct alternate firing positions similar to the primary positions.
- Emplace rear and overhead cover on the primary positions after alternate positions are constructed.
- Remove fire hazards. Pre-position fire fighting equipment.

- Construct dummy positions in rooms above, below, and next to primary and alternate positions in order to draw enemy suppressive fire away from primary positions.

(4) ***Rehearsals.*** Conduct verbal rehearsals with leaders and soldiers concerning the orientation of the defense, unit positions, location of crew served weapons, counterattack plans, withdrawal plan, etc.

(5) ***Mobility enhancement.*** There will not be much time to improve mobility within the defense. Plan to use tunnels, underground routes, and routes through buildings. Priority should be given to moving obstructions to alternate positions and to the counterattack route.

b. **Improving the Defense.** As time permits, the following areas can be given consideration and prioritized in accordance with METT-T.

- Sleep plan.
- Barrier and obstacle improvement.
- Improvement of primary and alternate positions.
- Preparation of supplementary positions.
- Additional movement enhancement efforts.
- Initiation of patrols.
- Improvement of camouflage.
- Continued rehearsals for counterattack and withdrawal.

4-4. THE DELIBERATE DEFENSE

A critical platoon and squad-level defensive task in combat in built-up areas is the preparation of fighting positions. General defensive considerations in urban terrain are similar to any other defensive operations. Fighting positions in built-up areas are usually constructed inside buildings and are selected based on an analysis of the area in which the building is located, the individual characteristics of the building, and the characteristics of the weapons system.

a. **Priorities of Work.** The general priorities of work are:

- Conduct a leader's reconnaissance of the battle position. Determine and confirm the engagement area and determine the decision point.

R-5A, Intelligence Collection/Dissemination: Leaders should consider the use of an Unmanned Aerial Vehicle (UAV) for overflight mapping and reconnaissance of an objective area. This will allow reconnaissance of the objective area without the enemy learning the strength, location, or intentions of the main element.

R-5B, Intelligence Collection/Dissemination: Leaders should consider the use of an Unmanned Ground Vehicle (UGV) for reconnaissance of the inside of tunnel systems, buildings, and other objective areas. This will allow reconnaissance of the objective area without the enemy learning the strength, location, or intentions of the main element.

- Ensure the security elements establish local security during the reconnaissance and position occupation.

R-5B, Intelligence/Dissemination: Consider using an Unmanned Ground Vehicle (UGV) in a static position to provide an unmanned LP/OP.

- Select key weapons and crew-served weapon positions to cover likely mounted and dismounted avenues of approach. Position antiarmor weapons to cover armored avenues of approach inside buildings with adequate space and ventilation for backblast (on upper floors, if possible, for long-range shots). Position MGs/SAWs to cover dismounted avenues of approach. Place them near ground level to increase grazing fires. If ground rubble obstructs grazing fires, place MGs/SAWs in the upper stories of the building. Ensure weapons are mutually supporting and are tied-in with adjacent units.

NOTE: It is important to reconnoiter the position from the enemy perspective to know how the position should be defended, if possible.

- Ensure the position is free of enemy, mines, and obstacles.

- Assign sectors of fire, engagement priorities, and other fire control measures. Develop an obstacle, indirect fire, and direct-fire plan (digitally, if applicable). Plan for OPs to have multiple methods of communications, if available.

R-8, Remote Marking Munitions: Use the M203 TPT round as a remote marking munition to facilitate fire control and designate sectors of fire.

WARNING

The M203 TPT round has a metal projectile body that can ricochet and cause injuries.

R-3, NLOS Radio: Due to the line of sight (LOS) nature of unit TO&E FM radios and the decentralized nature of combat in urban terrain, consider the use of a NLOS radio for improved communication capabilities. This type of radio may also be able to provide the user with hands off capabilities, minimum body movement for operation, and remote channel/frequency changing. If fielded to each soldier, it may provide the capability of a unit intercom. Leaders should ensure their NLOS radios are checked and serviceable prior to conduct of the mission.

NOTE: Because of their lack of secure capability, transmissions on these radios must be considered to be monitored by enemy forces, news media, and any entity with a minimum of technology. Transmissions must be characterized by the use of call signs, authentication, and prowords to transmit data.

- Designate the location for the early warning systems, if available, the chemical-alarm system, if available, and the location of key leaders.

- Ensure the position is free of noncombatants or remove them from the area of operations before occupation of the position. (See T&EO 7-3/4-XX13, Handle Noncooperative Noncombatants During Operations on the Urban Battlefield and T&EO 7-3/4-XX14, Evacuate Cooperative Noncombatants During Operations on the Urban Battlefield.)

R-35, Personnel Restraints: Soldiers can carry and use small and easily portable (in a pocket) restraint devices to secure and control noncombatants such as civilian detainees.

- Move the platoon/squad forward on covered and concealed routes. Enforce camouflage, noise, light, and litter discipline. Maintain security during movement.

- Occupy designated positions at the same time, if possible. Establish security to include OPs, hasty perimeter, or security patrols. Emplace at least one OP with communications within five minutes of occupation so that the main body is warned before an enemy attack. Emplace the early warning system or devices before dark or other limited visibility. Set up the chemical alarm system for monitoring within five minutes of occupying the position.

R-3, NLOS Radio: Due to the line of sight (LOS) nature of unit TO&E FM radios and the decentralized nature of combat in urban terrain, consider the use of a NLOS radio for improved communication capabilities in the defnse. This type of radio may also be able to provide the user with hands off capabilities, minimum body movement for operation, and remote channel/frequency changing. If fielded to each soldier, it may provide the capability of a unit intercom. Leaders should ensure their NLOS radios are checked and serviceable prior to conduct of the mission.

NOTE: Because of their lack of secure capability, transmissions on these radios must be considered to be monitored by enemy forces, news media, and any entity with a minimum of technology. Transmissions must be characterized by the use of call signs, authentication, and prowords to transmit data.

- Position remaining squad/team members. Assign each member a position with primary and secondary sectors of fire. Ensure positions permit interlocking fires.

R-8, Remote Marking Munitions: Use the M203 TPT round as a remote marking munition to facilitate fire control and designate sectors of fire.

WARNING

The M203 TPT round has a metal projectile body that can ricochet and cause injuries.

- Ensure that the gunners prepare range cards. Squad leaders prepare sector sketches and submit a copy to the platoon leader. The platoon leader prepares a platoon sector sketch and sends a copy to the company commander.

- Platoon members prepare fighting positions. Hasty positions are improved as time permits.

- Physically reconnoiter in front of the position to become familiar with the terrain and to locate dead space.

R-5A, Intelligence Collection/Dissemination: Leaders should consider the use of an Unmanned Aerial Vehicle (UAV) for overflight mapping and reconnaissance of an objective area. This will allow reconnaissance of the objective area without the enemy learning the strength, location, or intentions of the main element.

R-5B, Intelligence Collection/Dissemination: Leaders should consider the use of an Unmanned Ground Vehicle (UGV) for reconnaissance of the inside of tunnel systems, buildings, and other objective areas. This will allow reconnaissance of the objective area without the enemy learning the strength, location, or intentions of the main element.

- Make physical contact with adjacent positions and select covered and concealed routes to these locations.

- Clear fields of fire. Prepare loopholes. Prepare aiming stakes, sector stakes, and TRP markings. Construct overhead cover for fighting positions (inside and outside). Camouflage positions.

- Identify and secure subterranean avenues of approach (sewers, basements, stairwells, and rooftops).

- Stockpile ammunition, food, fire-fighting equipment, and drinking water.

- Mark the engagement area (engagement lines, TRPs) IAW T&EO 7-3-4201, Employ Direct-Fire Weapons Systems.

R-8, Remote Marking Munitions: Use the M203 TPT round as a remote-marking munition to mark the engagement area.

WARNING

The M203 TPT round has a metal projectile body that can ricochet and cause injuries.

- Conduct rehearsals with key leaders.

R-40, Virtual Mission Planner: A virtual mission planner may be used to plan missions and conduct platoon and squad briefbacks and rehearsals. The virtual imagery of buildings and blocks may be especially useful in planning and rehearsing offensive operations. Visualizing where all the elements of a unit are during the fight will allow planning, increase situational awareness, and prevent fratricide.

NOTE: Conventional maps and overlays must be maintained and used as a back up system if a virtual mission planner is used, in the event of a system failure.

- Continue coordination with adjacent units. Establish responsibility for overlapping enemy avenues of approach between adjacent squads and platoons. Exchange information on OP locations, unit signals, and passage points.

- Install wire communications as time permits.

- Construct barriers and obstacles to deny the enemy access to streets, underground passages, and buildings, and to slow his movement (including rooftops and in all buildings) IAW the platoon or company obstacle plan. Integrate barriers and/or obstacles with key weapons. Cover all barriers and obstacles by fire (both direct and indirect) and/or observation. Conceal the obstacle from enemy observation as much as possible. Erect the obstacle in an irregular pattern. Employ the obstacle in depth (if possible). Tie the obstacle in with existing obstacles.

- Revise the fire support plan to ensure that the direct and indirect fire plan support the concept of the defense, to include FPF and fires used to support repositioning the platoon to alternate or supplementary positions (digitally, if applicable). Cover likely avenues of approach. Cover obstacles. Cover the enemy avenues of approach. Cover known or likely enemy positions. Cover final protective fires (if applicable). Cover counterattack plans.

- Improve movement routes between positions as well as to alternate and supplementary positions. Mark routes between positions. Improve routes by digging trenches, using sewers and tunnels, creating mouseholes, and emplacing ropes for climbing and rappelling.

R-27, Man Size Hole: Consider the use of the Beast or Explosive Cutting Tape (ECT) for creating man sized breaches both on the exterior and interior of buildings allowing access for assaulting and movement in and through buildings.

R-30A, Breaching Devices: When explosives cannot be used or are not appropriate or available for breaching, consider the use of breaching devices to create mouseholes and loopholes.

- Develop a counterattack plan for each likely enemy course of action. Designate the counterattack force. Ensure the counterattack force is allocated demolitions, antiarmor assets, and extra grenades. Designate and, if appropriate, mark routes for counterattack. Ensure the plan is rehearsed during the day and at night.

R-34, Stun Grenade: Consider the use of nonlethal stun grenades rather than fragmentation grenades to prevent the possibility of fratricide or injury to noncombatants.

- Prepare and rehearse the withdrawal plan. Ensure that subordinate leaders plan and disseminate primary and alternate withdrawal signals. Designate and, if appropriate, mark primary, alternate and supplementary withdrawal routes. Ensure the withdrawal plan is rehearsed during the day and at night.

R-8, Remote Marking Munitions: Use the M203 TPT round as a remote-marking munition to mark withdrawal routes.

WARNING

The M203 TPT round has a metal projectile body that can ricochet and cause injuries.

b. **Considerations.**

(1) ***Security.*** The first priority is to quickly establish all-around security by placing forces on likely approaches. Each position should have at least one soldier provide security during all preparations. Part of establishing security requires ensuring that no noncombatants remain in the area. Emphasize the reconnaissance and counterreconnaissance plans.

R-5A, Intelligence Collection/Dissemination: Leaders should consider the use of an Unmanned Aerial Vehicle (UAV) for overflight mapping and reconnaissance of a objective area. This will allow reconnaissance of the objective area without the enemy learning the strength, location, or intentions of the main element.

R-5B, Intelligence Collection/Dissemination: Leaders should consider the use of an Unmanned Ground Vehicle (UGV) for reconnaissance of the inside of tunnel systems, buildings, and other objective areas. This will allow reconnaissance of the objective area without the enemy learning the strength, location, or intentions of the main element.

(2) ***Protection.*** Select buildings that provide protection from direct and indirect fires. Reinforced concrete buildings with three or more floors provide suitable protection, while buildings constructed of wood, paneling, or other light material must be reinforced to gain sufficient protection. As much as possible, material used for reinforcing positions should be gathered from the local area. One- and two-story buildings without a strongly constructed cellar are vulnerable to indirect fires and require construction of overhead protection for each fighting position.

(3) ***Dispersion.*** A platoon position should not be established in a single building when it is possible to occupy two or more buildings that permit mutually supporting fires. A position without mutual support in one building is vulnerable to bypass, isolation, and subsequent destruction from any direction.

(4) ***Concealment.*** Do not select buildings that are obvious defensive positions (easily targeted by the enemy). Requirements for security and fields of fire could require the occupation of exposed buildings. Therefore, additional reinforcement materials could be required to provide suitable protection inside the building.

(5) ***Fields of fire.*** To prevent isolation, individual and crew served weapon positions should be mutually supporting and have fields of fire in all directions. Clearing fields of fire could require the destruction of adjacent buildings using explosives, engineer equipment, and field expedients.

R-8, Remote Marking Munition: Consider the employment of the M203 TPT round as a remote marking munition to facilitate fire control and distribution.

WARNING

The M203 TPT round has a metal projectile body that can ricochet and cause injuries.

(6) ***Covered routes.*** Defensive positions should have at least one covered and concealed route that permits resupply, medical evacuation, reinforcement, or withdrawal from the building. The route can be established by using one or more of the following:

- underground systems.
- communications trenches.
- protective buildings.
- walls of adjacent buildings.

R-27, Man Size Hole: Consider the use of the Beast or Explosive Cutting Tape (ECT) for creating man sized breaches both on the exterior and interior of buildings allowing soldiers access for assaulting and movement in and through buildings.

(7) ***Observation.*** Positions in buildings should permit observation of enemy avenues of approach and adjacent defensive sectors. Upper stories offer the best observation but also attract enemy fire.

(8) ***Fire hazard.*** Avoid selecting positions in buildings that are a fire hazard. If flammable structures must be occupied, wetting down the immediate environment, laying an inch of sand on the floors, and providing fire extinguishers and fire fighting equipment can reduce the danger of fire. Routes of escape must be prepared in case of fire. If some type of emergency breathing apparatus with enough oxygen to allow withdrawal is available, it should be issued.

(9) ***Time.*** Time available to prepare the defense could be the most critical factor. If enough time is not available, buildings that require extensive preparation should not be used. Conversely, buildings located in less desirable areas that require little improvement could probably become centers of defense.

b. **Preparation.** Preparation of fighting positions depends upon proper selection and construction. There are many ways to establish a fighting position in a building. Prepared fighting positions are discussed in detail in para. 4-4. Assign each weapon a primary sector of fire to cover enemy approaches. Select alternate positions that over-watch the primary sector. These positions are usually located in an adjacent room on the same floor. Assign each weapon a supplementary position to engage attacks from other directions and a final protective line (FPL). Each weapon should have a range card prepared for each position.

c. **Other Typical Tasks.** Other defensive preparation tasks in basements, on ground floors, and on upper floors will need to be performed.

(1) ***Basements and ground floors.*** Basements require preparation similar to that of the ground floor. Any underground system not used by the defender that could provide enemy access to the position must be blocked.

- Doors. Unused doors should be locked; nailed shut; and blocked and reinforced with furniture, sandbags, or other field expedients.

- Hallways. If not required for the defender's movement, block hallways with furniture and tactical wire.

- Stairs. Block or remove stairs not used with furniture and tactical wire. If possible, all stairs should be blocked and ladders should be used to move from floor to floor and then removed when not being used.

- Windows. Remove all glass. Block windows not used with boards or sandbags to prevent observation and access.

R-14C, Personal Protection Kit Version C: While preparing positions in built up area, use special protective gloves and sleeves to protect against cuts and abrasions.

- Floors. Make fighting positions in the floors. If there is no basement, fighting positions can give additional protection from heavy direct-fire weapons.

- Ceilings. Support that can withstand the weight of rubble from upper floors should be placed under ceilings.

- Unoccupied rooms. Block rooms not required for defense with tactical wire.

(2) ***Upper floors.*** Upper floors require the same preparation as ground floors. Windows need not be blocked, but cover them with wire mesh, canvas, ponchos, or other heavy material which blocks grenades thrown from the outside. The covering should be loose at the bottom to permit the defender to drop grenades.

(3) ***Interior routes.*** Routes are required that permit defending forces to move within the building to engage enemy forces from any direction. Plan and construct escape routes to permit rapid evacuation of a room or a building. Small holes (called mouseholes) should be made through interior walls to permit movement between rooms. Such holes should be clearly marked for both day and night identification. Brief all personnel as to where the various routes are located. Conduct rehearsals so that everyone becomes familiar with the routes.

(4) ***Fire prevention.*** Buildings that have wooden floors and rafter ceilings require extensive fire prevention measures. Cover the attic and other wooden floors with about one to two inches of sand or dirt and position buckets of water for immediate use. Place fire-fighting materials (dirt, sand, fire extinguishers, and blankets) on each floor for immediate use. Fill water basins and bathtubs as a reserve for fire fighting. Turn off all electricity and gas. Destroying buildings adjacent to the defensive position can create firebreaks but can draw attention to the position. If available, use any existing fire extinguishers found in buildings.

(5) ***Communications.*** Conceal radio antennas by placing them among civilian television antennas, along the sides of chimneys and steeples, or out of windows that direct FM communications away from enemy early-warning sources and ground observation. Lay wire lines through adjacent buildings or underground systems or bury them in shallow trenches. Lay wire communications within the building through walls and floors.

R-3, NLOS Radio: Due to the line of sight (LOS) nature of unit TO&E FM radios and the decentralized nature of combat in urban terrain, consider the use of a NLOS radio for improved communication capabilities. This type of radio may also be able to provide the user with hands off capabilities, minimum body movement for operation, and remote channel/frequency changing. If fielded to each soldier, it may provide the capability of a unit “intercom”.

NOTE: Because of their lack of secure capability, transmissions on these radios must be considered as being monitored by enemy forces, news media, and any entity with a minimum of technology. Transmissions must be characterized by the use of call signs, authentication, and prowords to transmit data.

(6) ***Rubbling.*** Rubbling parts of the building may provide additional cover and concealment for weapons emplacements but should be performed only by trained engineers because of the danger of building collapse. Units need to limit rubbling so as not to impede their own movement within the built-up area.

(7) ***Rooftops.*** Positions in flat-roofed buildings require obstacles that restrict helicopter landings and access by helicopter. Cover rooftops that are accessible from adjacent structures with tactical wire or other expedients and guard them. Block entrances to buildings from rooftops if compatible with the overall defensive plan. Removed or block any structure on the outside of a building that could assist scaling the buildings to gain access to upper floors or to the rooftop.

(8) ***Obstacles.*** Position obstacles adjacent to buildings to stop or delay vehicles and infantry. To save time and resources in preparing the defense, platoon leaders must emphasize using all available materials such as automobiles, railcars, and rubble to create obstacles. Civilian construction equipment and materials must be located and inventoried. This equipment can be used with engineer assets or in place of damaged equipment. In host nation countries, coordination must be made with proper civilian officials before use. Engineers must be able to provide advice and resources as to the employment of obstacles and mines. The principles for employing mines and obstacles do not change in the defense of a built-up area; however, techniques do change. For example, burying and concealing mines in streets is difficult due to concrete and asphalt. Mines may be placed in sandbags. Obstacles must be tied to buildings and rubble areas to increase effectiveness and to canalize the enemy. Since obstacles around kill zones can become easily recognized, this problem can be decreased by overturning cars and setting up other obstacles throughout the area that would keep the enemy from becoming wary when encountering an obstacle. Obstacles made of cars and other vehicles can be tied together by running light poles through the vehicles. FASCAM may be effective on the outskirts of a city or in parks; however, in a city core, areas may be too restrictive. For engineer support, see Chapter 5, para. 5-3.

(9) ***Fields of fire.*** Improve fields of fire around the defensive position. Destroy selected buildings to enlarge fields of fire. Clear obstacles to antitank guided missiles such as telephone wires. Cover dead space with mines and obstacles, M203 preplanned indirect fire, patrols, grenades, and early warning devices.

d. **Antitank Weapons Positions.** Employ antitank weapons in areas that maximize their capabilities in the built-up area. The lack of a protective transport could require the weapon to be fired from inside of a building, from behind the cover of a building, or from behind the cover of protective terrain.

e. **Sniper Positions.** Snipers contribute to combat in built-up areas by firing on selected enemy soldiers. An effective sniper organization can trouble the enemy far

more than its cost in the number of friendly soldiers employed. Snipers deploy in positions where they are not easily detected and can provide the most benefit.

4-5. PREPARED FIGHTING POSITIONS

A prepared fighting position is one built or improved to allow a soldier to engage a particular area, avenue of approach, or enemy position, reducing his exposure to return fire. Examples of prepared positions include barricaded windows, fortified loopholes, sniper positions, antiarmor positions, and machine gun positions. The platoon leader should inspect squad positions, recheck sectors, make any last minute changes, establish communications, and plan for consolidation and reorganization contingency. The squad leaders reinforce alternate and supplementary positions.

a. **Window positions.** Soldiers should kneel or stand on either side of a window. To fire downward from upper floors, tables, or similar objects can be placed against the wall to provide additional elevation, but must be positioned to prevent the weapon from protruding through the window. Leaders should inspect positions to determine the width of sector that each position can engage (Figure 4-3).

Figure 4-3. Window fighting position.

The natural firing ports provided by windows can be improved by barricading the windows, leaving a small hole for firing use. Accomplish the barricading with materials torn from the interior walls of the building or any other available material. When barricading windows, avoid:

(1) Barricading only the windows that will be used as firing ports. The enemy will soon determine that the barricaded windows are fighting positions.

(2) Neat, square, or rectangular holes that are easily identified by the enemy as firing ports. The window should keep its original shape so that the position of the

individual firing is hard to detect. Firing from the bottom of the window is less obvious to the enemy. Use sandbags to reinforce the wall below the window for increased protection. Remove all glass from the window. Blinds or curtains permit seeing out and prevent the enemy from seeing in. Wire mesh over the window keeps the enemy from throwing in hand grenades. Place wet blankets under weapons to reduce dust.

b. **Loopholes.** Although windows usually are good fighting positions, they do not always allow the individual to engage all targets in his sector. Loopholes are small firing ports created in buildings that allow the firer to cover areas that cannot be covered in any other way. Alternately, they allow the firer different means of access to shots on certain locations.

(1) To avoid establishing a pattern of always firing from windows, an alternate position is required such as a prepared loophole. This involves cutting or blowing a small hole in the wall to allow observation and to allow engaging targets in sector. To enhance individual protection, do not fire directly through loopholes and do not extend the weapon muzzle through the loophole. Ensure that the muzzle flash is not easily seen.

(2) Several loopholes are usually required for each weapon (primary, alternate, and supplementary positions). The number of loopholes should be carefully considered because they can weaken walls and reduce protection. Engineers should be consulted before an excessive number of loopholes are made. Loopholes should be made by punching or drilling holes in walls and should be placed where they are concealed. In many types of buildings, simple tools may be able to create a loophole. If time is a factor, demolitions or tamped claymore mines may be used. However, blasting loopholes can result in a large hole, easily seen by the enemy.

(3) Loopholes should be cone-shaped (with the small end of the cone toward the outside) to obtain a wide arc of fire, to facilitate low and high engagement of targets, and to reduce the size of the exterior aperture. The edges of a loophole splinter when hit by bullets, therefore, protective linings, such as an empty sandbag held in place by wire mesh, will reduce spalling effects. When not in use, cover loopholes with sandbags to prevent the enemy from firing into or observing through them (Figure 4-4).

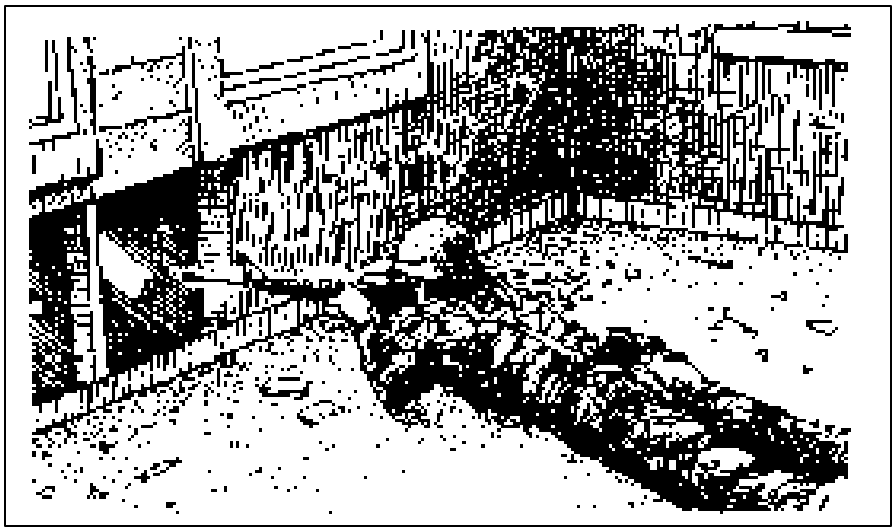


Figure 4-4. Loopholes.

(4) Loopholes should also be prepared in interior walls and ceilings of buildings to permit fighting within the position. Interior loopholes should overwatch stairs, halls, and unoccupied rooms and be concealed by pictures, drapes, or furniture. Loopholes in floors permit the defender to engage enemy personnel on lower floors with small-arms fire and grenades.

(5) Sandbags are used to reinforce the walls below, around, and above the loophole. Two layers of sandbags are placed on the floor under the individual firing to protect him from an explosion on a lower floor (if the position is on the second floor or higher). A wall of sandbags, rubble, furniture, and so on should be constructed to the rear of the position to protect him from explosions in the room.

(6) Tables, beds, or other available material provide overhead cover for the position. This prevents injury from falling debris or explosions above the position.

(7) The position should be camouflaged by knocking other holes in the wall, making it difficult for the enemy to determine which hole the fire is coming from. Siding material should be removed from the building in several places to make loopholes less noticeable. Loopholes located behind shrubbery, under doorjambs, and under the eaves of a building are hard to detect. In the defense, as in the offense, a fighting position can be constructed using the building for overhead cover.

NOTE: Dummy loopholes, shingles knocked off, or holes cut that are not intended to be used as fighting positions aid in deception operations.

c. **Individual Fighting Positions.** Some rules and considerations for selecting and occupying individual fighting positions are to:

- Begin improving a hasty position immediately after occupation.
- Make maximum use of available cover and concealment.
- Avoid being silhouetted against light-colored buildings, the skyline, and so on.
- Avoid firing over cover; when possible, fire around it.
- Keep exposure time to a minimum.
- Avoid setting a pattern; fire from both barricaded and non-barricaded windows.
- Use construction material for prepared positions that is readily available in a built-up area.

d. **Considerations for Employment of Antitank Weapons.**

(1) ***Considerations for choice of positions.***

(a) The rifle squad in defense of a built-up area is often reinforced with attached antitank weapons. The rifle squad leader must be able to develop good fighting positions for the antitank weapons under his control.

(b) Various principles of employing antitank weapons have universal applications such as making maximum use of available cover; trying to achieve mutual support; and allowing for the backblast when positioning recoilless weapons, TOWs, Dragons, and M72 LAWs or AT4s.

(c) Recoilless weapons and ATGMs firing from the top of a building can use the chimney for cover. The rear of this position should be reinforced with sandbags (Figure 4-5).

Figure 4-5. A recoilless weapon crew firing from a rooftop.

(d) When selecting fighting positions for recoilless weapons and ATGMs, make maximum use of rubble, corners of buildings, and destroyed vehicles to provide cover for the crew. Recoilless weapons and ATGMs can be moved along rooftops to obtain a better angle from which to engage enemy armor. When positions are at street level, they can be prepared using a building for overhead cover. The backblast under the building must not damage or collapse the building or injure the crew (Figure 4-6).

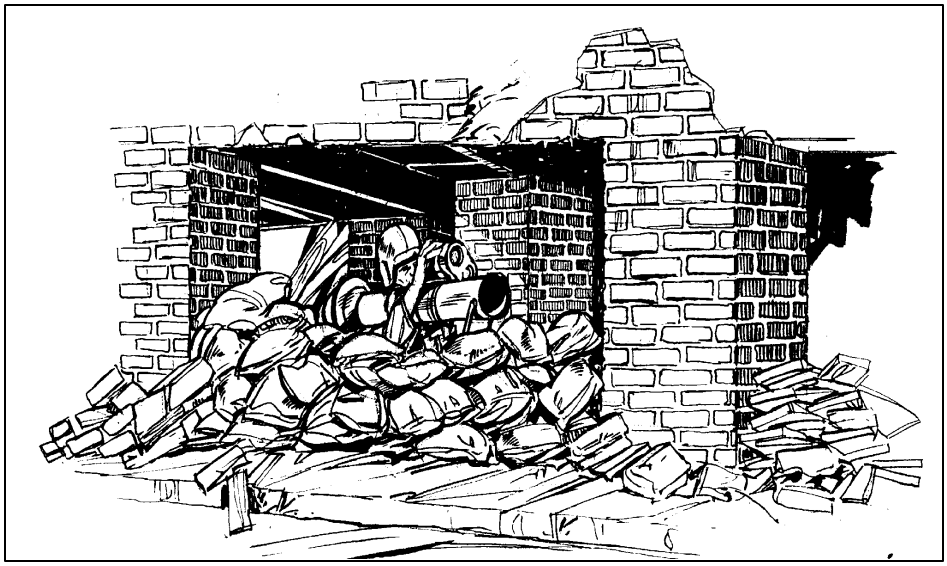


Figure 4-6. Prepared positions using a building for overhead cover.

NOTE: When firing from a slope, ensure that the angle of the launcher relative to the ground or firing platform is not greater than 20 degrees. When firing from inside a building, ensure the enclosure is at least 17 feet by 24 feet; is clear of debris and loose objects; and has windows, doors, or holes in the walls for the backblast to escape (at least 20 square feet, such as a 3 by 7 door).

(2) ***Backblast considerations.*** In defending a built-up area, the recoilless weapon and ATGM crews are severely hampered in choosing fighting positions due to the backblast of their weapons. They may not have enough time to knock out walls in buildings and clear backblast areas. They should select positions that allow the backblast to escape such as corner windows where the round fired goes out one window and the backblast escapes from another. The corner of a building can be improved with sandbags to create a fighting position (Figure 4-7).

Figure 4-7. Corner fighting position.

R-14C, Personal Protection Kit Version C: While preparing positions, use special protective gloves and sleeves to protect against cuts and abrasions.

e. **Considerations for machine-gun positions.**

(1) The machine gun can be emplaced almost anywhere. Windows and doors offer ready-made firing ports. For this reason, the enemy normally has windows and doors under observation and fire. Any opening in walls that were created during the fighting may be used. When other holes are not present, tools and small explosive charges can create loopholes. Regardless of what openings are used, machine guns should be within the building and in the shadows (Figure 4-8).

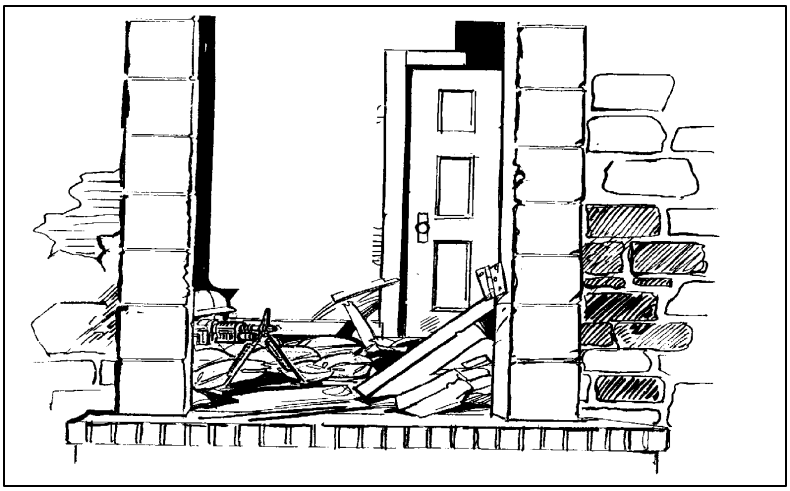


Figure 4-8. Emplacement of machine-gun in a doorway.

(2) Loopholes should be used extensively in the defense for machine-guns. They should not be constructed in any logical pattern, nor should they all be at floor or tabletop level. Varying their height and location makes them hard to pinpoint and identify (Figure 4-9). Most of the same considerations for loopholes for individual fighting positions apply to machine gun positions.

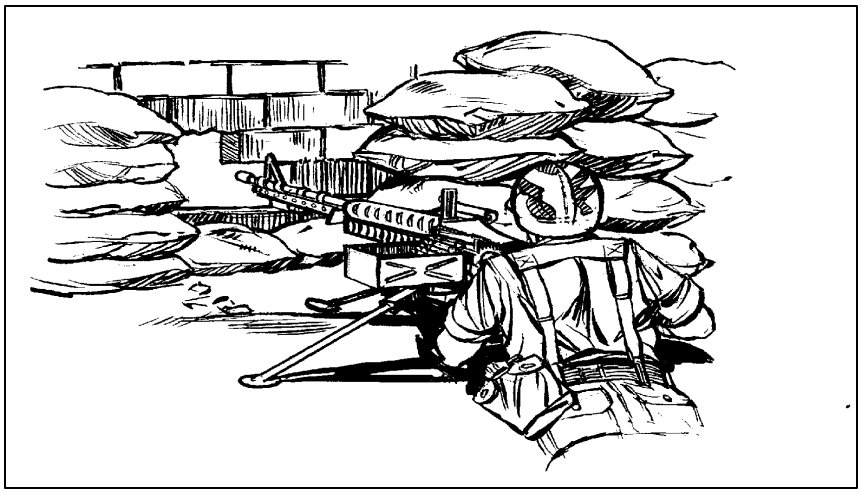


Figure 4-9. Use of a loophole with a machine gun.

(4) Increased fields of fire can be obtained by locating the machine gun in the corner of the building or sandbagged under a building. Integrate available materials, such as desks, overstuffed chairs, couches, and other items of furniture into the construction of fighting positions to add cover and concealment (Figures 4-10 and 4-11).

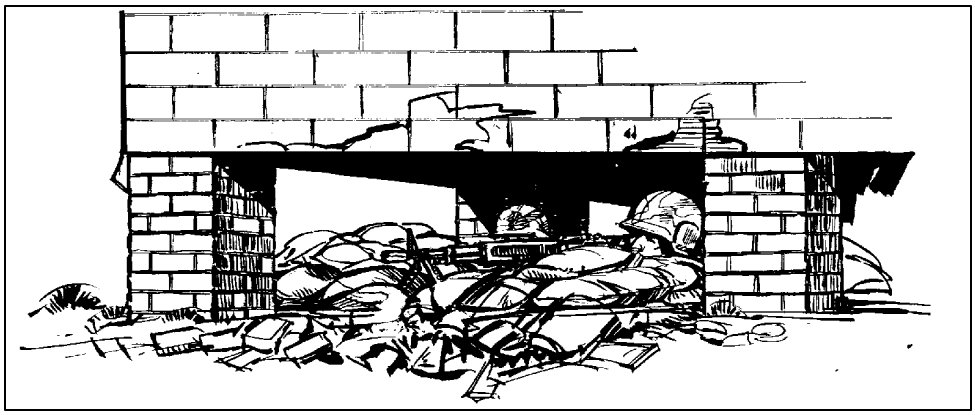


Figure 4-10. Sandbagged machine gun emplacement under a building.

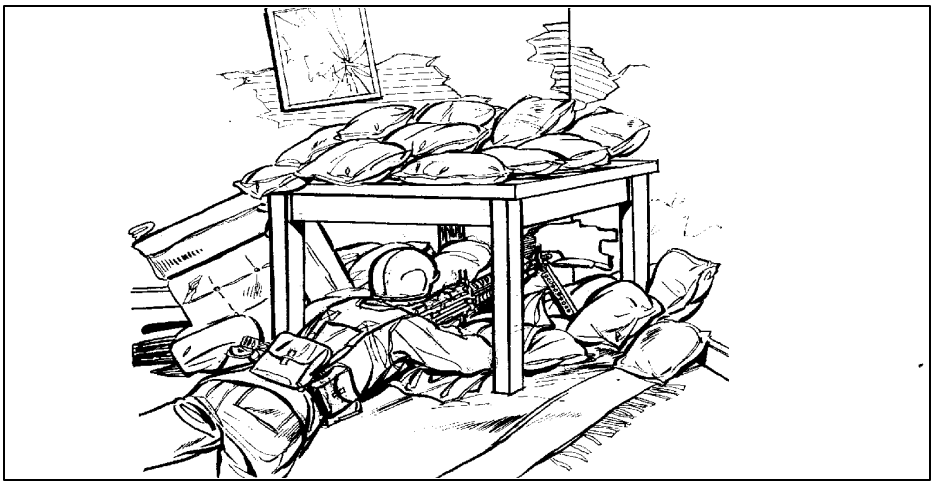


Figure 4-11. Corner machine gun bunker.

(5) Although grazing fire is desirable when employing the machine gun, it may not always be practical or possible. Where destroyed vehicles, rubble, and other obstructions restrict the fields of grazing fire, elevate the gun to where it can fire over obstacles. Firing from loopholes on the second or third story may be necessary. A firing platform can be built under the roof and a loophole constructed Again, knocking off shingles in isolated patches over the entire roof must conceal the exact location of the position (Figure 4-12).

Figure 4-12. Firing platform built under roof.

(6) Weapons placed on floors or on tables should be sandbagged to keep them from moving. The use of the tripod will give better control.

f. **Improve Fighting Positions.** Improve fighting positions as time permits. Reinforce all positions, to include supplementary and alternate positions, with sandbags and provide overhead cover. Timely and accurate support from attached engineers helps in this effort. For engineer support, see Chapter 5, para. 5-3.

g. **Establish and Mark Routes Between Positions.** Reconnaissance by all defending elements should help select routes for use by defenders moving between positions. Movement is crucial in fighting in built-up areas. Early selection and marking of routes adds to the defender's advantages.

4-6. WEAPONS EMPLOYMENT CONSIDERATIONS IN THE DEFENSE

a. **M16 Rifle/M4 Carbine, M203, and M249 Squad Automatic Weapon.** The M16 rifle, the M4 carbine, and the M203 are the most common weapons fired in built-up areas. The M16 rifle, the M4 carbine, the rifle portion of the M203, and the M249 are used to kill enemy personnel, to suppress enemy fire and observation, and to penetrate light cover. Leaders can use 5.56-mm tracer fire to designate targets for other weapons. Close combat is the predominant characteristic of urban engagements. Riflemen must be able to hit small, fleeting targets from bunker apertures, windows, and loopholes. This requires pinpoint accuracy with weapons fired in the semiautomatic mode. Killing an enemy through an 8-inch loophole at a range of 50 meters is a challenge, but one that may be common in combat in built-up areas.

R-24, Frangible Ammunition: In some instances, to prevent the possibility of fratricide or injury to friendly inhabitants, consider the use of 5.56-mm and 7.62-mm Controlled Penetration Ammunition (CPA) "Soft Round" which will penetrate human bodies/walls and then stop either in the body or in the wall.

WARNING

Because frangible ammunition disintegrates upon impact with any surface harder than the projectile itself, safety glasses should be worn to protect eyes from fragments.

NOTE: The use of frangible ammunition will prevent firing through objects (furniture, walls, etc.). This could place the unit at a severe disadvantage against an enemy not so equipped.

NOTE: Within built-up areas, burning debris, reduced ambient light, strong shadow patterns of varying density, and smoke all limit the effect of night vision and sighting devices. The use of aiming stakes in the defense and of the pointing technique in the offense, both using three-round bursts, are night firing skills required of all infantrymen. The individual laser aiming light can sometimes be used effectively with night vision goggles (NVG). Any soldier using NVG should be teamed with at least one soldier not wearing them.

WARNING

Tracer ammunition is likely to start structure fires.

b. **Medium and Heavy Machine Guns (7.62 mm and .50 caliber).** In the urban environment, the M2 .50-caliber machine gun and the 7.62-mm M60 or M240 machine gun provide high-volume, long-range, automatic fires for the suppression or destruction of targets. They provide final protective fire along fixed lines and can be used to penetrate light structures. The .50-caliber machine gun is most effective in this role. The primary consideration impacting on the employment of machine guns within built-up areas is the limited availability of long-range fields of fire. Although machine guns should be emplaced at the lowest level possible, grazing fire at ground level is often obstructed by obstacles such as automobiles and rubble.

- The M2 .50-caliber machine gun is often employed on its vehicular mount during both offensive and defensive operations. If necessary, it can be mounted on the M3 tripod mount for use in the ground role or in the upper level of buildings. When mounted on a tripod, the .50-caliber machine gun

can be used as an accurate, long-range weapon and can supplement sniper fires.

- Because of their reduced penetration power, M60 and M240 machine guns are less effective against masonry targets than the M2 .50-caliber machine gun. However, their availability and light weight make them well suited to augment heavy machine gun fire in areas where .50-caliber machine guns cannot be positioned or as a substitute when heavy machine guns are not available. The M60 or M240 machine gun can be employed on its tripod to deliver accurate fire along fixed lines and then can quickly be converted to bipod fire to cover alternate fields of fire.

c. **Hand Grenades.** Consider employing grenades during a unit mission and plan to implement them into the defensive plan. The effect created by the use of hand grenades gives a defending force the edge by slowing down the progress of an attacking force and forcing them to disperse. Grenades can enhance a unit's combat power when integrated with other weapons. Hand grenades give a single defender the ability to cover dead space within his sector of fire such as against the side of a building he is defending. Grenades can inflict large numbers of casualties on an attacking force when dropped from windows, through holes in ceiling, or down stairwells. Grenades can be used for functions other than as a casualty-producing weapon. They also can be used to support signaling and screening.

R-34, Stun Grenade: To prevent the possibility of fratricide or injury to friendly inhabitants, soldiers should consider the use of nonlethal stun grenades rather than the fragmentation grenade.

CAUTION

You may substitute Flash-bang or other distraction devices for fragmentation grenades. Keep security on the area in which a grenade is thrown. At all times, the individual throwing the grenade and the rest of his element should have a planned area to move to for safety if the grenade does not go where intended. Cook off grenades to ensure that they cannot be thrown back by the enemy.

d. **Grenade Launchers, 40 mm (M203 AND MK 19).**

(1) Both the M203 dual-purpose weapon and the MK 19 grenade machine gun fire 40-mm HE and HEDP ammunition. Ammunition for these weapons is not interchangeable, but the grenade and fuse assembly that actually hits the target is identical. Both weapons provide point and area destructive fires as well as suppression.

The MK 19 has a much higher rate of fire and a longer range; the M203 is much lighter and more maneuverable.

R-8, Remote Marking Munitions: Consider the use of the M203 TPT round as a remote marking munition to facilitate fire control and distribution.

WARNING

The M203 TPT round has a metal projectile body that can ricochet and cause injuries

(2) The main consideration affecting the employment of 40-mm grenades within built-up areas is the typically short engagement range. The 40-mm grenade has an arming range of 14 to 38 meters. If the round strikes an object before it is armed, it will not detonate. Both the HE and HEDP rounds have 5-meter bursting radii against exposed troops, The minimum safe firing range for combat is 31 meters. The MK 19 can use its high rate of fire to concentrate rounds against light structures. This concentrated fire can create extensive damage. The 40-mm HEDP round can penetrate the armor on the flank, rear, and top of Soviet-made BMPs and BTRs. Troops can use the M203 from upper stories to deliver accurate fire against the top decks of lightly armored vehicles. Multiple hits are normally required to achieve a kill.

e. **Light Antiarmor Weapons.** Light antiarmor weapons are used to attack enemy personnel, light armored vehicles, and field fortifications. Light recoilless weapons can be fired from the tops of buildings or from enclosed areas with extensive ventilation. They have limited capability against main battle tanks, especially those equipped with reactive armor, except when attacking from the top, flanks, or rear. This category of weapons includes the M72 LAW; the AT4 or AT8; the Carl Gustav; and the shoulder-launched, multipurpose, assault weapon (SMAW). Unlike the others, the Carl Gustav and the SMAW are crew-served weapons.

(1) Light antiarmor weapons obtain their most effective short-range antiarmor shots by firing from upper stories or from the flanks and rear. Flanks, top, and rear shots hit the most vulnerable parts of armored vehicles. Firing from upper stories protects the soldier from tank main gun and coaxial machine gun fire since tanks cannot elevate their cannons sharply.

NOTE: The BMP-2 can elevate its 30-mm cannon to engage targets in upper stories. The BTR-series armored vehicles can also fire into upper stories with their heavy machine gun.

(2) Modern infantry fighting vehicles, such as the BMP-2 and the BTR-80, have significantly improved frontal protection against shaped-charge weapons. Many main battle tanks have some form of reactive armor in addition to their thick armor plate.

Head-on, ground-level shots against these vehicles have little probability of obtaining a kill. Even without reactive armor, modern main battle tanks are hard to destroy with a light antiarmor weapon. When firing at main battle tanks, these weapons should always be employed against weaker areas in volley or paired firing. They normally require multiple hits to achieve a kill on a tank.

(3) The easiest technique to use that will improve the probability of hitting and killing an armored vehicle is to increase the firing depression angle. A 45-degree downward firing angle doubles the probability of a first-round hit as compared to a ground-level shot.

(4) The only difference between firing these weapons from enclosures and firing them in the open is the hazard produced by the backblast and the overpressure.

(5) Frame buildings, especially small ones, can suffer structural damage to the rear walls, windows, and doors from the backblast (Figure 4-13). Large rooms suffer slight damage, if any.

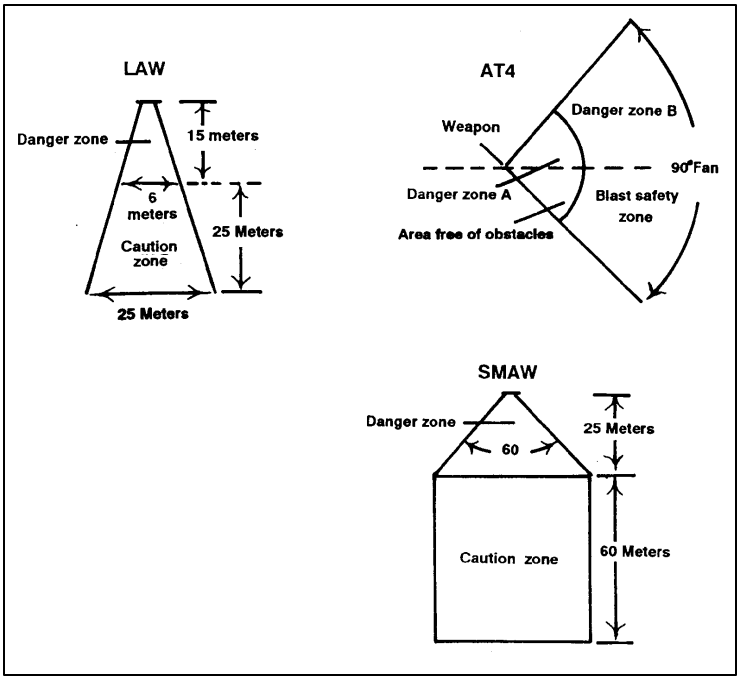


Figure 4-13. Backblast areas of light recoilless weapons in the open.

(6) Recoilless weapons fired from within enclosures create some obscuration inside the room, but almost none from the gunner's position looking out. Obscuration can be intense inside the room, but the room remains inhabitable.

(7) The Carl Gustav and the SMAW are not recommended to be fired inside structures due to their backblast.

NOTE: Consider weapons backblast characteristics when employing all recoilless weapons. During combat in built-up areas, the backblast area in the open is more hazardous than in the rural terrain of the countryside due to all the loose rubble and the channeling effect of the narrow streets and alleys.

f. **Javelin.** The Javelin is a medium, fire and forget antitank weapon. Within built-up areas, Javelins are best employed along major thoroughfares and from the upper stories of buildings to attain long-range fields of fire. Their minimum firing range of 75 meters could limit firing opportunities in the confines of densely built-up areas.

NOTE: The affect that the Javelin could have on urban targets has not been adequately explored. It is not anticipated that it would have a suitable affect for breaching but it may but used against bunkers and as an anti-sniper weapon.

(1) ***Obstacles to Javelin fires***. The Javelin, with its fire and forget capability, is not as restricted as the TOW and Dragon missile systems are by ground obstacles and water. However, with its unique flight characteristics, overhead obstacles can limit the use of the Javelin in urban terrain. In the direct attack mode, the Javelin missile requires up to 60 meters of overhead clearance (Figure 4-14). In top attack mode, it requires up to 160 meters of overhead clearance (Figure 4-15).

(2) ***Dead space***. The aspects of dead space that affect Javelin fires the most are arming distance and target/background temperature differences. Few areas in the inner city permit fires much beyond the minimum arming distance. Ground-level long-range fires with the Javelin down streets or rail lines and across parks or plazas are possible. The Javelin may be used effectively from upper stories or roofs of buildings to fire into other buildings. The Javelin is not affected by maximum elevation and depression limits as are the Dragon and TOW.

(3) ***Backblast***. The Javelin's soft launch capability enables the gunner to fire from within an enclosed area with a reduced danger from backblast overpressure or flying debris.

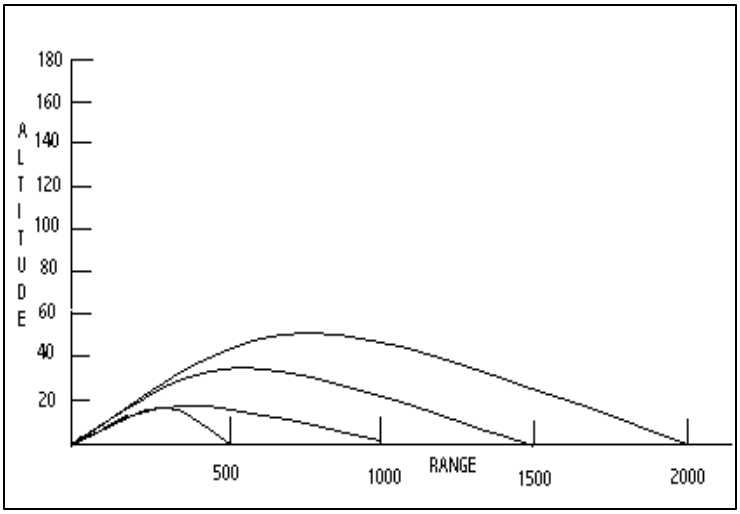


Figure 4-14. Javelin flight profile in the direct attack mode.

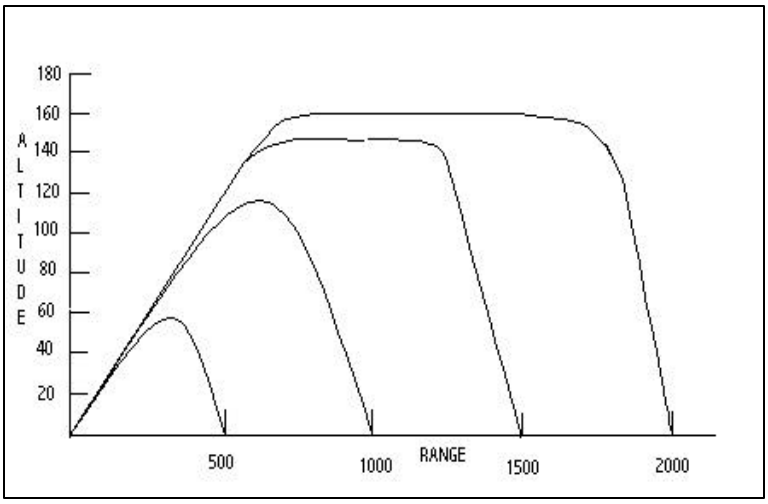


Figure 4-15. Javelin flight profile in the top attack mode.

WARNING

Soldiers should protect themselves from blast and burn injuries caused by the backblast of recoilless weapons. All personnel should be out of the danger zone. Anyone not able to vacate the caution zone (25 meters) should be behind cover. Soldiers in the caution zone should wear helmets, protective vests, and eye protection. The gunner and all soldiers in the area should wear hearing protection.

WARNING

When firing antiarmor weapons, the most serious hazard that can be expected is hearing loss. This must be evaluated against the advantage gained in combat from firing from cover. To place this hazard in perspective, a gunner wearing hearing protection and firing the loudest combination (the Dragon from within a masonry building) is exposed to less noise hazard than if he fired an M72 in the open without hearing protection. Double hearing protection is recommended for firing antiarmor weapons in built-up areas.

WARNING

Gunners should take advantage of all available sources of ventilation by opening doors and windows. Ventilation does not reduce the noise hazard, but it helps clear the room of smoke and dust, and reduces the effective duration of the overpressure.

NOTE: The backblast of the Dragon, the SMAW, the Carl Gustav, and the AT4 cause the most structural damage in frame buildings. There does not seem to be any threat of injury to the gunner since the damage is usually to the walls away from the gunner. Most of the damage and debris is from flying plaster chips and pieces of wood trim. Large chunks of plasterboard can be dislodged from ceilings. The backblast area should be cleared of all loose material from the floor to the ceiling.

g. **Dragon.** The Dragon is a wire guided missile used mainly to defeat main battle tanks and other armored combat vehicles. It has a moderate capability against bunkers, buildings, and other fortified targets commonly found during combat in built-up areas. Dragons provide an extended range capability for the engagement of armor during the defense. Within built-up areas, they are best employed along major thoroughfares and from the upper stories of buildings to attain long-range fields of fire.

(1) ***Obstacles***. When fired from street level, rubble or other obstacles could interfere with missile flight. At least 3.5 feet (roughly 1 meter) of vertical clearance over such obstacles must be maintained. The most common obstacles to Dragon flights found in built-up areas are power lines. Power lines are a special obstacle that presents a unique threat to Dragon gunners. If power in the lines has not been interrupted, the guidance wires could create a short circuit. This would allow extremely high voltage to pass to the gunner in the brief period before the guidance wires melt. This voltage could either damage the sight and guidance system or injure the gunner. Before any Dragon is fired over a power line, an attempt must be made to determine whether or not the power has been interrupted.

(2) ***Dead space***. Three aspects of dead space that affect Dragon engagements are arming distance, maximum depression, and maximum elevation.

(3) ***Arming distance.*** The Dragon missile has a minimum arming distance of 65 meters, which severely limits its use in built-up areas. Few areas in the inner city permit missile firing much beyond the minimum arming distance. Ground-level long-range engagements down streets or rail lines and across parks or plazas are possible. It may be used effectively from upper stories or roofs of buildings to fire into other buildings. Because of the minimum arming range, trigger lines must be established to ensure that tracking time is accounted for so the armored vehicle will not be closer than the minimum arming range at time of impact.

(4) ***Backblast.*** Backblast for Dragons is more of a concern during combat in built-up areas than in open country (Figure 4-16). Any loose rubble in the caution zone could be picked up and thrown by the backblast. The channeling effect of walls and narrow streets is even more pronounced due to the greater backblast. If the backblast strikes a wall at an angle, it can pick up debris or be deflected and cause injury to unprotected personnel. The Dragon can be fired from inside some buildings. In addition to the helmet and protective vest, all personnel in the room should wear eye and hearing protection.

(5) ***Safety precautions.*** To fire a Dragon from inside a room, the building must be of sturdy construction. The following safety precautions must be taken:

- The ceiling should be at least 7 feet high.
- The floor size of the room should be at least 17 by 24 feet and larger, if possible.
- At least 20 square feet of room ventilation should exist, preferably to the rear of the weapon. An open 7- by 3-foot door is sufficient.
- Removing sections of interior partitions can create additional ventilation.
- All glass must be removed from the windows, and all small loose objects removed from the room.
- All personnel in the room should be forward of the rear of the Dragon.
- All personnel in the room should wear ballistic eye protection and hearing protection.

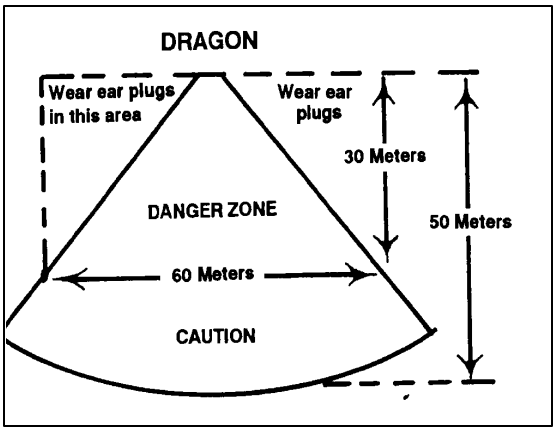


Figure 4-16. Dragon backblast area.

4-7. CAMOUFLAGE

To survive and win in combat in built-up areas, a unit must supplement cover and concealment with camouflage. To properly camouflage men, vehicles, and equipment, soldiers must study the surrounding area and make positions look like the local terrain.

a. **Application.** Only the material needed for camouflaging a position should be used since excess material could reveal the position.

(1) Material must be obtained from a wide area. For example, if defending a building, do not strip the front, sides, or rear of the building to camouflage a position.

(2) Buildings provide numerous concealed positions. Armored vehicles can often find isolated positions under archways or inside small industrial or commercial structures. Thick masonry, stone, or brick walls offer excellent protection from direct fire and provide concealed routes.

b. **Use of shadows.** Buildings in built-up areas throw sharp shadows, which can be used to conceal vehicles and equipment. Avoid areas that are not in shadows. Move support vehicles as shadows shift during the day. Emplacements inside buildings provide better concealment.

(1) Avoid the lighted areas around windows and loopholes. You will be better concealed if you fire from the shadowed interior of a room.

(2) A lace curtain or piece of cheesecloth provides additional concealment in the interior of rooms if curtains are common to the area.

c. **Color and Texture.** Standard camouflage pattern painting of equipment is not as effective in built-up areas as a solid, dull, dark color hidden in shadows. Since

repainting vehicles before entering a built-up area is not always practical, the lighter sand-colored patterns should be subdued with mud or dirt.

(1) The need to break up the silhouette of helmets and individual equipment exists in built-up areas the same as it does elsewhere. However, burlap or canvas strips are a more effective camouflage than foliage. Predominant colors are normally browns, tans, and sometimes grays rather than greens, but each camouflage location should be evaluated on an individual basis (Figure 4-17).

Figure 4-17. Helmet camouflaged with burlap strips.

(2) Weapons emplacements should use a wet blanket, canvas, or cloth to keep dust from rising when the weapon is fired (Figure 4-18).

Figure 4-18. Wet blankets used to keep dust down.

(3) Antennas can be remoted to upper stories or to higher buildings based on remote capabilities. Field telephone wire should be laid in conduits, in sewers, or through buildings.

R-3, NLOS Radio: Due to the line of sight (LOS) nature of unit TO&E FM radios and the decentralized nature of combat in urban terrain, the use of a NLOS radio for improved communication capabilities should be considered. This type of radio may also be able to provide the user with hands off capabilities, minimum body movement for operation, and remote channel/frequency changing. If fielded to each soldier, it may provide the capability of a unit "intercom".

NOTE: Because of their lack of secure capability, transmissions on these radios must be considered as being monitored by enemy forces, news media, and any entity with a minimum of technology. Transmissions must be characterized by the use of call signs, authentication, and prowords to transmit data.

(4) Soldiers should consider the background to ensure that they are not silhouetted or skylined, but rather blend into their surroundings. To defeat enemy urban camouflage, soldiers should be alert for common camouflage errors such as the following:

- Tracks or other evidence of activity.
- Shine or shadows.
- An unnatural color or texture.
- Muzzle flash, smoke, or dust.
- Unnatural sounds and smells.
- Movement.
- Sandbagging or preparing only one window.
- Opening shutters for only one window.
- Use of woodland camouflage instead of urban camouflage colors and patterns.

(5) Dummy positions can be used effectively to distract the enemy and make him reveal his position by firing. Because of the nature of urban terrain, the deception effort is critical to survivability of defensive positions.

(6) Built-up areas afford cover, resources for camouflage, and locations for concealment. The following basic rules of cover, camouflage, and concealment should be adhered to:

- Use the terrain and alter camouflage habits to suit your surroundings.
- Employ deceptive camouflage of buildings.
- Continue to improve positions. Reinforce fighting positions with sandbags or other fragment and blast absorbent material.
- Maintain the natural look of the area.
- Keep positions hidden by clearing away minimal debris for fields of fire.
- Choose firing ports in inconspicuous spots when available.

NOTE: Remember that a force that covers and conceals itself has a significant advantage over a force that does not.

4-8. FIRE HAZARD CONSIDERATIONS

The flammable nature of structures and furniture, tracers, incendiary ammunition, special weapons, and the ease with which incendiary devices can be constructed from gasoline and other flammables make fire a serious threat in operations in built-up areas. During defensive operations, fire fighting should be a primary concern. The proper steps must be taken to reduce the risk of a fire that could make a chosen position indefensible.

a. Soldiers should choose or create positions that do not have large openings. These positions provide as much built-in cover as possible to prevent penetration by incendiary ammunition. The electricity and gas coming into the building must be shut off. All unnecessary flammable materials are removed, including ammunition boxes, furniture, rugs, newspapers, curtains, and so on.

b. A building of concrete block construction, with concrete floors and a tin roof, is an ideal place for a position. However, most buildings have wooden floors or subfloors, wooden rafters, and wooden inner walls, which require preparation to withstand fires. Remove inner walls and replace them with blankets to resemble walls from the outside. Spread sand one to two inches deep on floors and in attics to retard fire.

c. Pre-position all available fire fighting gear so it can be used during actual combat. Such gear includes entrenching tools, helmets, sand, and blankets. These items are supplemented with fire extinguishers.

d. Fire is so destructive and can move so fast that it can easily overwhelm personnel regardless of extraordinary precautions. Plan primary and alternate routes of withdrawal to prioritize their routes of evacuation from fighting position to fighting position. This allows soldiers to exit through areas that are free from combustible material and provides cover from enemy direct fire.

e. The confined space and large amounts of combustible material in built-up areas can influence the enemy to use incendiary devices. Two major first-aid problems that are more urgent than in the open battlefield are burns and smoke and flame inhalation, which create a lack of oxygen. These can easily occur in buildings and render the victim combat ineffective. Although there is little defense against flame inhalation and lack of oxygen, smoke inhalation can be somewhat reduced by wearing the individual protective mask. However, protective masks cannot make up for a lack of oxygen. Only a forced air type of respirator, such as used by firemen, provides oxygen, not a filtration-type mask. Regardless of the fire hazard, defensive planning for combat in built-up areas must include medical aid. Aidmen must reach victims and their equipment, and must have extra supplies for the treatment of burns and inhalation injuries.

DANGER

IN AN URBAN ENVIRONMENT, FIRE CAN EASILY DISPLACE OXYGEN IN AN ENCLOSED AREA. PROTECTIVE MASKS OFFER NO DEFENSE AGAINST A LACK OF OXYGEN AND DO NOT REPLACE A RESPIRATOR OR EMERGENCY BREATHING DEVICE.

4-9. DEFENSE AGAINST ARMOR

The terrain common to built-up areas is well suited to the infantry's defense against mechanized infantry and armored forces. However, being forced to fight in urban areas deprives them of the advantages that they possess in open terrain. Mechanized infantry and armored forces try to avoid built-up areas but may be forced to pass through them. Well-trained light infantry can inflict heavy casualties on such forces.

a. Built-up areas have certain traits that favor infantry antiarmor operations.

(1) Rubble in the streets can be used to block enemy vehicles, conceal mines, and cover and conceal defending infantry.

(2) The streets restrict armor maneuver, fields of fire, and communications, thereby reducing the enemy's ability to reinforce.

(3) Buildings provide cover and concealment for defending infantry.

(4) Rooftops, alleys, and upper floors provide good fighting positions.

(5) Sewers, storm drains, and subways may provide underground routes for infantry forces.

b. Antiarmor operations in built-up areas involve the following planning steps:

(1) ***Choose a good engagement area.*** Enemy tanks should be engaged where most restricted in their ability to support each other. The best way for infantrymen to engage tanks is one at a time, so that they can destroy one tank without being open to the fires of another. Typical locations include narrow streets, turns in the road, "T" intersections, bridges, tunnels, split-level roads, and rubble areas. Less obvious locations can also be used for demolitions or mines to create obstacles.

(2) ***Select good weapons positions.*** The best weapons positions are places where the tank is weakest and the infantry is most protected. A tank's ability to see and fire is limited, mainly to the rear and flanks, if the tanks are buttoned up. Buttoned-up armored vehicles have weapons and visual dead space against nearby targets located at ground level and overhead.

(3) ***Assign target reference points and select method of engagement.*** After selecting the weapons positions, assign target reference points (TRPs) to ensure coverage of the areas and to use as a tool in controlling fires. The TRPs should be clearly visible through the gunner's sights and should be resistant to battle damage (for example, large buildings or bridge abutments, but not trees or cars). The leader of the antiarmor operation should specify what type of engagement should be used, such as frontal, crossfire, or depth. Frontal fire is the least preferred since it might expose the gunner to the greatest probability of detection and it is where the armor is the thickest.

R-8, Remote Marking Munitions: Use the M203 TPT round as a remote marking munition to mark TRPs.

WARNING

The M203 TPT round has a metal projectile body that can ricochet and cause injuries.

(a) For the infantry force, the best places to fire on tanks are the flanks and rear at ground level or at the top of tanks if the force is in an elevated position.

(b) The best place to engage a tank from a flank is over the second road wheel at close range. This can be done using a corner so that the tank cannot traverse the turret to counterattack.

(c) For a safe engagement from an elevated position, infantrymen should allow the tank to approach to a range less than three times the elevation of the weapons.

(d) To engage at a longer range is to risk counter-fire, since the weapon's position will not be in the tank's overhead dead space. Overhead fire at the rear or flank of the tank is even more effective. Alternate and supplementary positions should be selected to enforce all-round security and to increase flexibility.

(4) ***Coordinate target engagements.*** Armored vehicles are most vulnerable when buttoned up. The first task of the tank-killing force is to force the tanks to button up, using all available direct and indirect fire. The proper use of fire control measures and graphics will greatly diminish the probability of fratricide. The next task is to coordinate the fires of the antitank weapons so that if there is more than one target in the engagement area, all targets are engaged at the same time.

(a) Infantry in built-up areas often accompanies armored vehicles. Because the enemy infantry may attempt to clear a route for the armored vehicles, antiarmor weapons must be supported by an effective all-round antipersonnel defense.

(b) At a planned signal, all targets are engaged at the same time. If targets cannot be engaged at the same time, they are engaged in the order of the most dangerous first. Although tanks present the greatest threat, enemy armored personnel carriers are also dangerous because their infantry can dismount and destroy friendly antiarmor positions. If infantry do not secure the friendly force, priority of engagement might be given to enemy armored personnel carriers. Rubble and mines should be used to reduce target mobility to present more targets to engage.

4-10. DEFENSE DURING LIMITED VISIBILITY

a. Platoon and squad leaders can expect the attacker to use limited visibility conditions to conduct necessary operations to sustain or gain daylight momentum. The platoon should employ the following measures to defend against night attacks:

(1) Shift defensive positions and crew-served weapons just before dark to deceive the enemy as to their exact location. A squad or fire team can often be shifted to an adjacent building and cover the same avenue of approach.

(2) Unoccupied areas between units, which can be covered by observed fire during daylight, may have to be occupied or patrolled during periods of limited visibility.

(3) Emplace radar, remote sensors, and night observation devices on streets and open areas. (See Chapter 5, para. 5-8 for GSR support.)

R-5A, Intelligence Collection/Dissemination: Leaders should consider the use of an Unmanned Aerial Vehicle (UAV) for over flight mapping and reconnaissance of an objective area. This will allow reconnaissance of the objective area without the enemy learning the strength, location, or intentions of the main element.

R-5B, Intelligence Collection/Dissemination: Leaders should consider the use of an Unmanned Ground Vehicle (UGV) for reconnaissance of the inside of tunnel systems, buildings, and other objective areas. This will allow reconnaissance of the objective area without the enemy learning the strength, location, or intentions of the main element.

(4) Position noise-making devices, tanglefoot tactical wire, and observation posts on secondary avenues of approach for early warning.

(5) Use observation posts, planned indirect fires, patrols, and anti-intrusion devices to prevent infiltration.

(6) Plan artificial illumination, to include the use of street lamps, stadium lights, and so forth.

(7) Use indirect fire weapons, grenade launchers, and hand grenades when defenses are probed to avoid disclosure of defensive positions.

b. Initiate FPFs by a planned signal. Crew-served weapons, tank-mounted weapons, and individual riflemen fire within their assigned sectors. Use grenades and command-detonated mines to supplement other fires as the enemy approaches the positions.

c. Defenders should move to daylight positions before BMNT. During attacks under limited visibility conditions such as fog, rain, or snowstorms, many of the techniques described for night defense apply. Platoons must rely on observation post and patrolling in these situations.

R-5B, Intelligence Collection/Dissemination: Leaders should consider the use of an Unmanned Ground Vehicle (UGV) in a static position as an LP/OP.

4-11. SUBTERRANEAN DEFENSE

Subterranean defense is similar to other defense in built-up areas. The unit defends and secures subterranean areas employing the following considerations:

a. A two-man position established at a tunnel entrance can provide security and early warning of enemy approach (Figure 4-9). This position should be abandoned in the event water levels rise, as in the case of a sewer entrance. To enhance their sense of hearing, soldiers at this position should not wear their hearing protection. Soldiers can put their hearing protection on before firing commences.

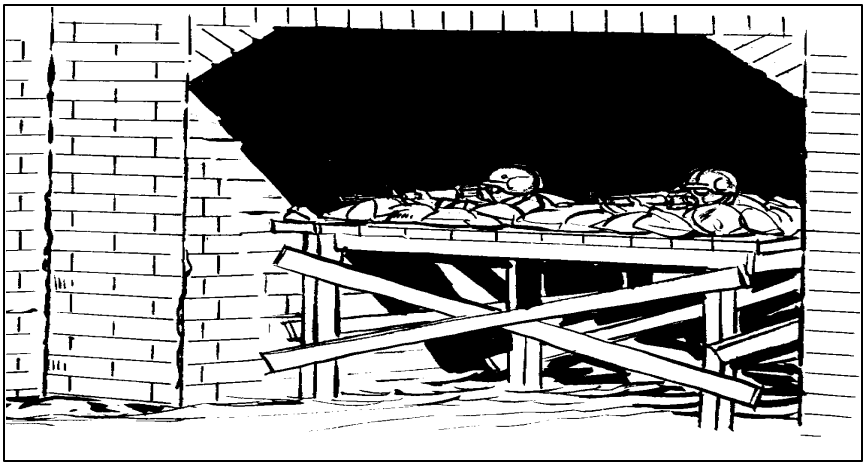


Figure 4-9. Two-man position established at the entrance to a sewer.

b. Use command-detonated Claymore mines. Because of the blast effects, all defenders should be above ground when used.

c. Plan illumination such as IR or chem lights to enhance visibility.

d. Blast charges, shaped to the side of the tunnel, can be designed to collapse the tunnel or kill by shock (again, this cannot be used with defenders below ground).

e. Pour petroleum products into sumps or leave them lying in tunnels. If the situation calls for it, you can ignite these products and make a fire obstacle in the tunnel. Careful planning must precede the use of petroleum products. If a fire is burning in a tunnel, it will displace oxygen and possibly harm you. Also, petroleum products could give off gases or fumes that are easily ignited by either side.

f. Place early warning devices in piles of rubble. Early warning devices are self-explanatory and the rubble can be used as concealment for the devices.

g. Devise other deception methods to impede, harass, slow-down, or stop the enemy from moving, such as a tripwire strung across an opening that is not attached to anything.

h. Concertina wire can be used inside and outside the tunnel.

i. Emplace field expedient obstacles inside and outside the tunnel.

j. As with any kind of defense, sandbags and wire are vital to ensure that tunnels are defended and secured properly.

4-12. CONDUCT OF THE DEFENSE.

The conduct of the defense in an urban area is similar to the conduct of the defense in any other area.

a. The platoon leader reports the situation to the company commander (digitally, if applicable).

b. The platoon leader calls in OPs (The platoon leader may decide to leave an OP in place if the personnel manning it can provide effective flanking fires, their position affords them adequate protection, or their return will compromise the platoon position).

R-5B, Intelligence Collection/Dissemination: Leaders should consider the use of an Unmanned Ground Vehicle (UGV) in a static position as an LP/OP.

R-3, NLOS Radio: Due to the line of sight (LOS) nature of unit TO&E FM radios and the decentralized nature of combat in urban terrain, leaders should consider use of NLOS radios to enhance communications between the CP and OP.

NOTE: Because of their lack of secure capability, transmissions on these radios must be considered to be monitored by enemy forces, news media, and any entity with a minimum of technology. Transmissions must be characterized by the use of call signs, authentication, and prowords to transmit data.

c. The platoon calls for and adjusts indirect fire when the enemy is at the greatest range.

d. The platoon initiates direct fire engagement of the attacking enemy IAW the company or platoon fire plan. Antiarmor weapons conduct initial engagement simultaneously, if possible.

e. The platoon uses direct and indirect fire to separate the enemy fighting vehicles from the infantry who are providing security for the vehicles.

f. The platoon executes the company or platoon barrier plan to impede and canalize the vehicles and personnel into planned fires.

g. The platoon employs smoke to blind the vehicles.

R26, Improved Obscurants: Leaders should consider the use of improved hand-held obscurants. The M83 smoke grenade is the most current version.

h. The platoon executes counterattack plans, if required.

R-24, Frangible Ammunition: To prevent the possibility of fratricide or injury to noncombatants, consider the use of 5.56 and 7.62 Controlled Penetration Ammunition (CPA) "Soft Rounds" which will penetrate human bodies/walls and then stop either in the body or in the wall.

WARNING

Because frangible ammunition disintegrates upon impact with any surface harder than the projectile itself, safety glasses should be worn to protect eyes from fragments.

NOTE: The use of frangible ammunition can and will prevent firing through objects (furniture, walls, etc.). This could place the unit at a severe disadvantage against an enemy not so equipped.

i. The platoon leader moves elements between primary, alternate, and supplementary positions to complete the destruction or expulsion of the enemy force.

j. The platoon consolidates and reorganizes squads and other elements as necessary during lulls in the fighting.

k. The platoon treats and evacuates casualties as necessary.

R-14B, Personal Protection Kit Version B: To prevent spreading contaminant infections, soldiers should use (as the situation permits) protective gloves and masks to administer first aid to team members, noncombatants, and prisoners of war, as the situation permits.

l. The platoon secures and evacuates EPWs and noncombatants.

R-35, Personnel Restraints: Leaders and soldiers should use small and easily portable (in a pocket) restraint devices, to control civilian detainees or captured military personnel.

m. The platoon leader transmits status reports, requests for support and resupply, and enemy information to the company CP IAW the platoon SOP and current orders.

R-3, NLOS Radio: Due to the line of sight (LOS) nature of unit TO&E FM radios and the decentralized nature of combat in urban terrain, the use of a NLOS radio for improved communication capabilities should be considered. This type of radio may also be able to provide the user with hands off capabilities, minimum body movement for operation, and remote channel/frequency changing. If fielded to each soldier, it may provide the capability of a unit "intercom".

NOTE: Because of their lack of secure capability, transmissions on these radios must be considered as being monitored by enemy forces, news media, and any entity with a minimum of technology. Transmissions must be characterized by the use of call signs, authentication, and prowords to transmit data.

n. Replace damaged barriers and obstacles, repair positions, restore communications, and post OPs that were withdrawn during the engagement.

o. Resume security and patrolling activities.

R-5A, Intelligence Collection/Dissemination: Leaders should consider the use of an Unmanned Aerial Vehicle (UAV) for overflight mapping and reconnaissance of an objective area. This will allow reconnaissance of the objective area without the enemy learning the strength, location, or intentions of the main element.

R-5B, Intelligence Collection/Dissemination: Leaders should consider the use of an Unmanned Ground Vehicle (UGV) for reconnaissance of the inside of tunnel systems, buildings, and other objective areas. This will allow reconnaissance of the objective area without the enemy learning the strength, location, or intentions of the main element.

p. Continues to defend the battle position/building until the enemy is repelled or is ordered to disengage.

q. If the platoon leader determines the platoon cannot hold its position, he reports the situation to the company commander, requests permission to withdraw and, on order, executes the withdrawal plan.

4-13. CONSOLIDATION

Consolidate the position following enemy contact in preparation for a subsequent attack.

a. Reestablish local security. If the OPs withdrew to the defensive position, send them back out.

b. Use snipers. This is a good time for them to be active. They are employed with the OPs or at vantage points on or behind the defensive position.

c. Restore camouflage and improve positions. Take care not to over-camouflage a position. If it was not found during one assault, chances are it will not be found during the next try.

d. Reestablish communications. Check wire to ensure it was not cut during the attack. Change pyrotechnic signals if you suspect compromise of signals.

e. If the enemy withdraws far enough and if time permits, replace obstacles, mines, and early warning devices. This is a risky task, especially if the enemy has snipers. Troops must be careful. Request smoke to cover their movement or wait until darkness.

f. Reposition fighting positions and weapons positions. If the platoon has just repelled an attack, the enemy may have found some of the positions. Reposition compromised positions.

g. Reassign sectors of fire to ensure that all gaps caused by the evacuation of casualties are covered and that the fighting positions remain mutually supporting.

h. Implement sleep and alert plans as soon as feasible.

4-14. REORGANIZATION

Reorganization is the restoration of order within the preparation of the unit for further combat. The platoon leader must plan the required reorganization of the platoon and include the plan in his order to the squad leaders. The plan is tentative, flexible, and may be changed as the situation requires, but it must be as complete and as detailed as possible. Leaders should:

a. Reestablish the chain of command. Fill all key positions from the remaining element members and ensure that all members are made aware of the new chain of command.

b. Evacuate the dead and seriously wounded. Ensure all positions remain mutually supporting. Check all sectors of fire after the casualties are evacuated to ensure the sectors remain covered. If necessary, shift positions or reassign sectors to cover the gaps.

c. Redistribute or resupply ammunition, weapons, and fuel. Ensure the squad leaders pass out additional ammunition, if available, or divide the remainder where it is most needed. Take a quick inventory and request a resupply, if necessary.

d. Ensure all enemy prisoners of war (EPWs), enemy material, and enemy information are collected, reported, and evacuated, if possible. Treat the wounded.

R-35, Personnel Restraints: Carry and use small and easily portable (in a pocket) restraint devices to control civilian detainees or captured military personnel.

e. Evacuate any noncombatants. Treat the wounded.

R-14B, Personal Protection Kit Version B: To prevent spreading contaminant infections, use protective gloves and masks to administer first aid to noncombatants and prisoners of war. They should also be used for handling the dead.

f. Ensure all crew-served weapons are manned and positioned on likely avenues of approach.

g. Give the company commander a situation report (SITREP) that includes the tactical situation, personnel strength, ammunition, and enemy strengths and any captured documents.

R-3, NLOS Radio: Due to the line of sight (LOS) nature of unit TO&E FM radios and the decentralized nature of combat in urban terrain, the use of a NLOS radio for improved communication capabilities should be considered. This type of radio may also be able to provide the user with hands off capabilities, minimum body movement for operation, and remote channel/frequency changing. If fielded to each soldier, it may provide the capability of a unit "intercom".

NOTE: Because of their lack of secure capability, transmissions on these radios must be considered as being monitored by enemy forces, news media, and any entity with a minimum of technology. Transmissions must be characterized by the use of call signs, authentication, and prowords to transmit data.

CHAPTER 5
SPECIAL CONSIDERATIONS/EQUIPMENT

5-1. COMBINED ARMS OPERATIONS

Because of the decentralized, fragmented nature of battles in urban areas, infantrymen will always represent the bulk of any successful force in urban combat. At the small-unit tactical level, light infantry forces have disadvantages that can be compensated for by mechanized infantry or armor units. Conversely, tanks and mechanized forces face problems in urban areas that place them at a severe disadvantage when operating alone. Only together can these forces accomplish their mission with minimal casualties while avoiding unnecessary collateral damage. In particular, the use of artillery may be severely curtailed except under the least restrictive ROE. The ROE may significantly affect how armored and mechanized forces can be used.

a. **Strengths, Weaknesses, and Employment Considerations for Small Combined Arms Teams.**

(1) ***Firepower and survivability***. Light infantry forces lack heavy supporting firepower, protection, and long-range mobility. Armored forces, on the other hand, can deliver devastating fires; are fully protected against antipersonnel mines, fragments, and small arms; and have excellent mobility along unblocked routes. Infantry small-arms fire within a building can eliminate resistance without seriously damaging the structure. Heavy fires from armored vehicles can cause unwanted collateral damage or can destabilize basic structures.

(2) ***Field of vision and fields of fire***. Although they have limited fields of view at the typically short ranges normally encountered during urban combat, the thermal sights on armored vehicles can detect enemy activity through darkness and smoke, conditions that limit even the best-equipped infantry. However, crewmen in armored vehicles have poor all-round vision through their vision blocks; smoke or dust easily blinds them. Tanks cannot elevate or depress their weapons enough to engage targets very close to the vehicle or targets high up in tall buildings. Infantrymen have excellent all-round vision and can engage targets with small-arms fire under almost all conditions.

(3) ***Vulnerability***. If isolated or unsupported by infantry, armored vehicles (with the possible exception of the heavily protected main battle tank) are vulnerable to enemy hunter/killer teams firing light and medium antiarmor weapons. Armored vehicle gunners cannot easily identify enemy targets unless the commander exposes himself to fire by opening his hatch or infantrymen direct the gunner onto the target. Armored vehicles are noisy. There is little chance of them arriving in an area undetected. Infantrymen can move stealthily into position without alerting the enemy. Improvised barricades, narrow streets and alleyways, or large amounts of rubble can block armored vehicles. Infantrymen can move over or around most urban terrain, regardless of the amount of damage to buildings.

(4) ***Size, speed, and psychology***. Armored vehicles project a psychological presence, an aura of invulnerability that aids friendly forces in deterring violence. Mounted patrols by armored vehicles can monitor large areas of a city while making their presence known to the entire populace, both friendly and unfriendly. During cordon and search operations, armored vehicles can move mounted infantrymen rapidly to points where, together, they can dominate and isolate the cordoned area. With their long-range sights and weapons, armored vehicles can dominate large expanses of open area and thus free dismounted infantry to operate in more restricted terrain and visual dead space. The mobile protected firepower of armored vehicles can be used to add security to resupply convoys and to extract wounded personnel under fire. The armored vehicle's smoke-generation capability can aid this and other small-unit actions.

b. **Organization.** Traditionally, armored vehicles participating as part of a combined arms team in an urban environment have been tanks working with small groups of dismounted infantrymen. The most common task organization of dispersed armor is to place a tank platoon OPCON to an infantry company, with the tank platoon further divided on the basis of a two-tank section to each of the lead rifle platoons. Individual tanks can be employed, but two-vehicle sections are preferred. A rifle squad is normally designated to work with each of the platoon's OPCON tanks. The advent of the BFV (especially the heavily protected variants) means that successful infantry/tank-type teams can be created around a few BFVs and some infantry. The BFV lacks the tank's main gun, but it has a powerful weapons combination in the TOW/25-mm/coax system.

c. **Maneuver of Vehicles and Personnel.** The infantry provides the eyes and ears of the team and normally leads movement through built-up areas. Armored vehicles follow and provide close overwatch. The infantry locates and identifies targets for the armored vehicles to engage.

(1) ***Narrow streets***. In movement down narrow streets, or down wider streets with narrow paths through the debris, infantry should move ahead of the armored vehicles, clearing the buildings on each side. The movement of personnel across open areas must be planned with a specific destination in mind. Suppression of enemy positions and smoke to cover infantry movement also should be included in the plan. Due to the restricted movement and limited observation of buttoned-up armored vehicles, the infantry must clear the route in advance of the armored vehicles. When needed, armored vehicles move up to places secured by the infantry to fire at suitable targets. When that area is cleared, the infantry again moves forward to clear the next area. The armored vehicles and infantry should use the traveling overwatch movement technique. Infantrymen can communicate with the armored vehicle crews by using arm-and-hand signals and radio. If an infantry unit must travel streets that are too narrow for this type of support, it uses armored vehicles in single file for support. They move and fire to cover each other's approach while the infantry provides ATGM fire.

(2) ***Wide streets***. For movement down wider streets, infantry platoons normally have a section of attached armored vehicles with one vehicle on each side of the street. Armored vehicles should not normally be employed singly. Other armored vehicles should move behind the infantry and fire at targets in the upper stories of buildings. In wide boulevards, commanders may employ an armored vehicle platoon secured by one or more infantry platoons. The infantry can secure the forward movement of the lead vehicle, while the rearward vehicles overwatch the movement of the lead units.

d. **Combined Arms in contact with the enemy.** If the infantry discovers an enemy position or encounters resistance, the armored vehicles immediately respond with supporting fire to fix the enemy in place or suppress him and allow the infantry to develop the situation. After sufficient time to develop the situation or conduct short-range reconnaissance, the infantry squad leader directs the armored vehicles to move, if necessary, and identifies specific targets for them to engage. Infantry/armored vehicle teams work together to bring the maximum combat power to bear on the enemy. The infantry maneuvers along covered and concealed routes to assault enemy elements fixed and suppressed by armored vehicle fire. It provides protection for the armored vehicles against attack by enemy dismounted infantry. Meanwhile, the armored vehicles provide heavy, continuous supporting fires against enemy strongpoints. There are many advantages and disadvantages of armored vehicles on an urban battlefield:

(1) ***Advantages:***

- Armored forces can deliver devastating fires; are fully protected against antipersonnel mines, fragments, and small arms; and have excellent mobility along unblocked routes.

- The thermal sights on armored vehicles can detect enemy activity through darkness and smoke, conditions that limit even the best-equipped Infantry.

- Mounted patrols by armored vehicles can monitor large areas of a city while making their presence known to the entire populace, both friendly and unfriendly.

- The armored vehicle's smoke-generation capability can aid this and other small-unit actions.

- The mobile protected firepower of armored vehicles can be used to add security to resupply convoys and to extract wounded personnel under fire.

- Armored vehicles project a psychological presence, an aura of invulnerability that aids the friendly forces in deterring violence.

- Armored vehicles can shuttle soldiers from one point to other under the protection of its armor.

(2) ***Disadvantages:***

- Tanks cannot elevate or depress their weapons enough to engage targets very close to the vehicle or high up in tall buildings.

- If isolated or unsupported by infantry, armored vehicles are vulnerable to enemy hunter/killer teams firing light and medium antiarmor weapons.

- Crewmen in armored vehicles have poor all-round vision through their vision blocks; smoke or dust easily blinds them.

- Because armor vehicles are loud, there is little chance of them arriving in an area undetected.

e. **Armored Vehicle Positions.** Fighting positions for tanks and infantry fighting vehicles are essential to a complete and effective defensive plan in built-up areas. Once positions are determined, sectors of responsibility are assigned and are defined by boundaries. They include areas where units may fire and maneuver without interference or coordination with other units. Responsibility for primary avenues of approach should never be split. In areas of semidetached construction, where observation and movement are less restricted, boundaries should be established along alleys or streets to include both sides of a street in a single sector. Where buildings present a solid front along streets, boundaries may have to extend to one side of the street.

(1) ***Hasty vehicle positions***. Where feasible, armored vehicles may drive inside buildings or behind walls for protection from enemy antitank missile fire. The infantry should first clear buildings. Ground floors should be checked to ensure that they will support the armored vehicle or that there is no basement into which the armored vehicle could fall and become trapped. When moving, all bridges and overpasses should be checked for mines and booby traps and for load capacity. Specific infantry elements should be assigned to protect specific armored vehicles.

(2) ***Prepared vehicle positions***. Armored vehicle positions are selected and developed to obtain the best cover, concealment, observation, and fields of fire, while retaining the vehicle's ability to move.

(a) *Hull down positions.* If fields of fire are restricted to streets, hull-down positions should be used to gain cover and fire directly down streets. From those positions, tanks and BFVs are protected and can rapidly move to alternate positions. Buildings collapsing from enemy fires are a minimal hazard to the armored vehicle and crew.

(b) *Hide positions.* The hide position covers and conceals the vehicle until time to move into position for engagement of targets. Since the crew will not be able to see advancing enemy forces from the vehicle, an observer from the vehicle or a nearby infantry unit must be concealed in an adjacent building to alert the crew. The observer acquires the target and signals the armored vehicle to move to the firing position and to fire. After firing, the tank/BFV moves to an alternate position to avoid compromising one location.

(c) *Building hide positions.* The building hide position conceals the vehicle inside a building. If basement hide positions are inaccessible, engineers must evaluate the building's floor strength and prepare for the vehicle. Once the position is detected, it should be evacuated to avoid enemy fires.

(d) Support vehicles may have to be moved periodically as shadows shift during the day. Emplacements inside buildings provide better concealment (Figure 5-1).

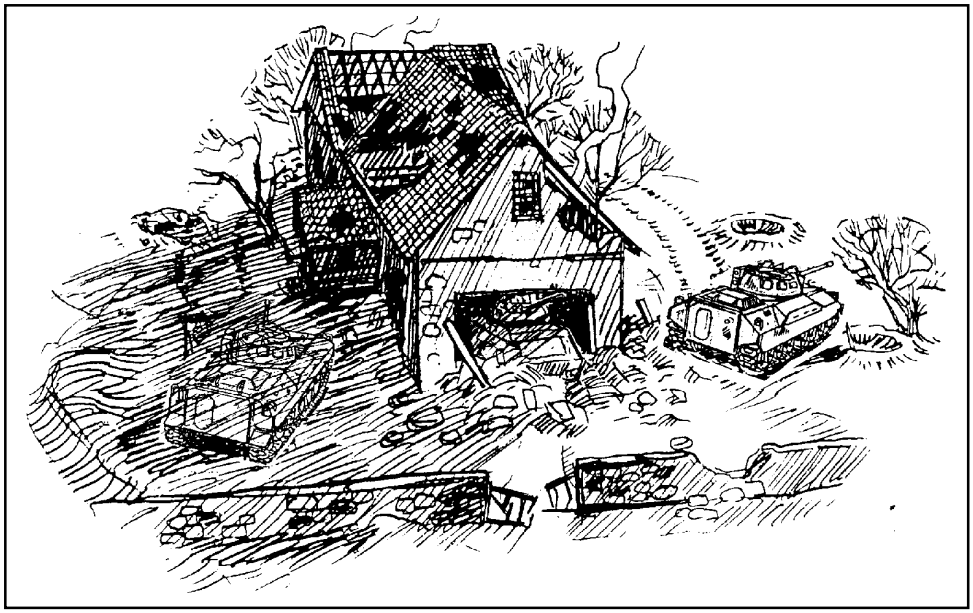


Figure 5-1. Use of shadows for concealment.

f. **Communications.** Communication between the dismounted infantry and the armored vehicles must be close and continuous. The vehicle commander or driver may need to dismount and move, accompanied by the dismounted unit leader, to a position where the route or target can be seen better. Signals used for initiating, shifting, or lifting fires must be understood by all. One of the greatest barriers to coordination and command and control in urban combat is the intense noise. Verbal commands should be backed up by simple, nonverbal signals.

R-3, NLOS Radio: Due to the line of sight (LOS) nature of unit TO&E FM radios and the decentralized nature of combat in urban terrain, consider the use of a NLOS radio for improved communication capabilities. This type of radio may also be able to provide the user with hands off capabilities, minimum body movement for operation, and remote channel/frequency changing. If fielded to each soldier, it may provide the capability of a unit "intercom". Fielding this type of radio to OPCON armored vehicles may solve the communications problems between vehicle crews and the infantry.

NOTE: Because of their lack of secure capability, transmissions on these radios must be considered as being monitored by enemy forces, news media, and any entity with a minimum of technology. Transmissions must be characterized by the use of call signs, authentication, and prowords to transmit data.

g. **Other Capabilities.** The Vehicle Engine Exhaust Smoke System (VEESS) and the vehicle's smoke grenade projectors may be used both by the armored vehicle and the infantry forces to provide concealment as they either move across open areas or recover wounded. The use of smoke must be carefully coordinated. Units using JP-8 have lost this capability to a great extent.

h. **Hazards.** The infantry must work closely with armored vehicles. Because of their proximity, these soldiers are at extreme risk to some of the hazards listed below.

(1) ***Smoke***. Although the vehicle's sights can see through most smoke, infantrymen are at a significant disadvantage when enveloped in dense smoke clouds. The smoke grenade launchers on the armored vehicle provide excellent, rapidly developed local smoke clouds, but the grenades produce burning fragments that are hazardous to infantrymen near the vehicle and can ignite dangerous fires in urban areas.

(2) ***Exhaust***. The extreme heat produced immediately to the rear of the M1-series tanks prevents infantry from following too closely, but protection from small-arms fire and fragments is still provided by the armored vehicle's bulk and armor.

(3) ***Overpressure and noise***. When the main gun of a tank fires, the cannon creates an overpressure and noise hazard to exposed infantrymen. All infantry working near armored vehicles should wear their helmets, protective vests, and hearing protection. Troops should also avoid the tank's frontal 60-degree arc during firing.

(4) ***Fragmentation***. Enemy fire striking an armored vehicle but not penetrating is a major threat to nearby infantry. Fragmentation generated by antitank rounds and ricochets off armor has historically been a prime cause of infantry casualties while

working with armored vehicles in built-up areas. Fragmentation coming from the detonation of an armored vehicle's reactive armor can also injure soldiers dismounted in the vicinity of the vehicle.

DANGER

BOTH THE M1 TANK AND THE M2/3 BFV FIRE AMMUNITION WITH THEIR MAIN GUNS THAT HAVE DISCARDING PORTIONS. THESE DISCARDS CAN BE LETHAL TO GROUND TROOPS. CLOSE COORDINATION BY THE ARMORED VEHICLE CREW AND THE INFANTRY LEADERS IS INSTRUMENTAL IN THE REDUCTION OF FRATRICIDE. MOUNTED AND DISMOUNTED TROOPS MUST BE AWARE OF THE FIRING ARCS OF THE MAIN GUNS.

5-2. ATTACK HELICOPTERS

Infantry units may be supported by a variety of armed helicopters ranging from fully modernized AH-64s to lightly armed but agile OH-58Ds and AH-6s. Regardless of the specific type of armed helicopter available, the same missions and tasks can be accomplished due to the inherent flexibility of Army aviation units.

a. **Missions.** The most common missions assigned to armed helicopters during urban combat are the following:

- Escort of troop-carrying aircraft during air assaults.
- Overwatch and supporting attacks integrated with the ground commander's maneuver.
- Interdiction and destruction of enemy armored vehicles moving against friendly forces.
- Precision engagement of hardened point targets.
- Assisting, for limited periods, in the control and coordination of fires with the maneuver of ground forces.
- Providing limited relay of radio messages from isolated ground units.
- Marking or identifying specific buildings and areas by smoke, fires, or targeting lasers.
- Videotaping routes or objectives for later analysis by ground commanders.

- Providing navigational and directional assistance to ground units.

- Providing limited area illumination by infrared or white light using either on-board sources or illumination rockets.

- Providing countersniper and counter-mortar/rocket armed reconnaissance patrols around friendly unit locations.

b. **Planning Considerations.** Although armed helicopters provide a flexibility and responsiveness almost unequaled by any other means of fire support, detailed planning is required to integrate them effectively with ground operations to accomplish the overall mission. The following must be considered when working with armed helicopters.

(1) ***Increased exposure to direct fire***. The ground-fire threat to armed helicopters increases during urban combat. Urban areas force the concentration of units and provide excellent cover and concealment for enemy gunners. In order to limit exposure to heavy antiaircraft weapons, helicopters may have to stay low and move quickly. This low-level flight increases their vulnerability to light small-arms fire.

(2) ***Obstacles to flight***. Obstacles in urban areas are more numerous and dangerous than in any other environment.

(3) ***Navigational difficulties***. Even though pilots can often see better than observers on the ground, because most maps do not show the vertical development of urban terrain, pilots can easily become temporarily misoriented. Navigational aids, such as GPS, have lessened but not eliminated this problem. Rapid displacement from position to position can sometimes create confusion between aerial and ground observers as to cardinal directions or locations. Differing datum between the ground unit's maps and the aerial unit's GPS can cause significant confusion unless compensated for.

(4) ***Weapons limitations***. Many characteristics of operations in urban areas limit aircraft weapons employment.

(a) *Ranges.* The short arming ranges and the slant within the urban area may limit aircraft weapons use.

(b) *Coordination.* Extensive use of missile weapons by several units in close proximity may cause coordination problems with target identification and designation.

(c) *Degradation of lasers.* Laser designation by both ground and aerial systems may be degraded by the large expanses of polished, flat reflective surfaces common in many urban areas.

(d) *Effects.* With the obvious exception of precision strikes by TOW or Hellfire, aerial fires can rarely destroy a target or kill large numbers of enemy forces within buildings. These fires provide excellent suppression and can drive enemy forces away from firing positions or fix the enemy in place until ground maneuver forces can destroy him. Enemy positions that have been struck by aircraft fire can normally be reoccupied quickly by the enemy.

(e) *Target acquisition.* Target identification and marking may be difficult because of heavy smoke and dust rising from urban fires and explosions. Friendly unit locations and personnel can be marked with colored panels, glint tape, strobe lights, and colored smoke. Targets can be marked with infrared laser pointers, such as the GCP-1 Ground Commander Pointer/Illuminator, colored M203 smoke rounds, M203 or mortar flares burning on the ground, or tracer fires. In some situations, improvised spotlights can also be used.

R-8, Remote Marking Munitions: Consider the use of the M203 TPT as a remote-marking munition to mark targets for armed helicopters.

WARNING

The M203 TPT round has a metal projectile body that can ricochet and cause injuries.

(f) *Firing on the move*. If possible, ground commanders should avoid directing pilots along a gun-target line that passes over friendly troops. Gun-target runs that are perpendicular to the friendly unit's front are normally best.

(g) *Aircraft limitations*. The need to deliver hovering fires from temporary battle positions may require the aircraft to carry less than a full load of munitions or fuel. This is especially true with older model aircraft in hot, wet climates. Reduced loads mean more frequent trips to forward area refuel and rearm points and less time on station.

(5) ***Command and support relationships***. It may be more effective for the aviation unit to retain control of its individual aircraft and to operate by continuously rotating armed helicopter elements into the battle area where they coordinate their attacks with the ground commander’s maneuver. Generally, the smaller and more decentralized the combat actions, the better it is to have armed aircraft coordinate directly with the small-unit leader on the ground. Close liaison and unambiguous verbal communication are essential.

(6) ***Armed helicopter operations in limited visibility***. Although US helicopters possess the most sophisticated night vision equipment in the world, armed helicopter operations in limited visibility are difficult and infantry leaders should seek the advice of

experienced aviators when planning night operations, especially those that may extend through a period of twilight.

5-3. ENGINEERS

Most engineer tasks are manual-labor intensive. These tasks will normally have to be completed by infantry units, with reinforcing engineer heavy-equipment support and technical supervision. An engineer squad may be attached to the infantry company which will normally assign the priorities of work. Control of the engineers will normally be retained at the company level

a. **Offensive Tasks**. Engineers may perform the following tasks during offensive operations in an urban environment:

- Reconnaissance. Conduct a technical reconnaissance to determine the location and type of enemy obstacles and minefields and to make breaching recommendations.

R-5A, Intelligence Collection/Dissemination: Leaders should consider the use of an Unmanned Aerial Vehicle (UAV) for overflight mapping and reconnaissance of a objective area. This will allow reconnaissance of the objective area without the enemy learning the strength, location, or intentions of the main element.

R-5B, Intelligence Collection/Dissemination: Leaders should consider the use of an Unmanned Ground Vehicle (UGV) for reconnaissance of the inside of tunnel systems, buildings, and other objective areas. This will allow reconnaissance of the objective area without the enemy learning the strength, location, or intentions of the main element.

- Clearing. Clear barricades and heavy rubble with earth-moving equipment to assist forward movement.

- Destruction. Use engineer equipment or hand-emplaced explosives to destroy fortifications, strongpoints, and structures and to clear rubble that cannot be reduced with the maneuver unit's organic assets.

- Emplace Minefields. Lay mines to protect flanks and rear areas.

- Conduct mobility operations (gap crossing/breaching).

b. **Defensive Tasks.** Engineers may perform the following tasks during the defense in urban terrain:

- Provide technical advice to maneuver commanders.
- Fight as infantry when needed.

(1) ***Countermobility:***

- Construct complex obstacle systems.
- Rubble buildings.
- Lay mines.

(2) ***Survivability***:

- Assist in the preparation of defensive strongpoints.
- Maintain counterattack, communications, and resupply routes.
- Enhance movement between buildings, catwalks, bridges, and so on.

5-4. INDIRECT FIRES

a. **Fire Planning.** Fire planning must be comprehensive due to the proximity of buildings to targets, minimum range restrictions, and repositioning requirements. The ROE may severely limit the use of indirect fires. Mortar and artillery fires are planned on top of and immediately around defensive positions for close support. Commanders should be aware that there will be no-fire areas, restricted fire lines, and restrictions on the type of ammunition.

b. **Difficulty.**

(1) ***Terrain masking and deadspace***. The urban environment greatly restricts low-angle indirect fires because of overhead masking. Mortars are less affected than field artillery weapons due to the mortar's high trajectory. For low angle artillery and naval gunfire, dead space is about five times the height of the building behind which the target sits. For mortar fire, dead space is only about one-half the height of the building.

(2) ***Effects of fire***.

(a) *Mortars*. Depending on the size of the mortar (from the 60mm to the 120mm), delay settings of fuzes can increase penetration of targets and proximity bursts can increase the lethal area covered by fragments. The possibility of destruction of buildings and cratering of roads must be considered when employing mortars. Smoke rounds are effective when used for screening and obscuring. However, the only smoke

rounds available for mortars are White Phosphorus, which cause fires, prohibit immediate follow-up, and which should not be called in "danger close" because of the probability of causing friendly casualties. Tall buildings can cause proximity fuzed mortar rounds to detonate prematurely if the rounds pass too closely. Mortars are employed to maximize the effect of their high-angle fires. They should be used to engage:

- Enemy overwatch positions.
- Enemy infantry before they seize a foothold.
- Targets on rooftops.
- Enemy reinforcements within range.

(b) *Artillery*. Weapons of at least 155 mm are necessary against thick reinforced concrete, stone, or brick walls. Only 50 percent of the rounds fired on the same data can be expected to fall within one range probable error (PE) of the target. Because of these factors, large expenditures of ammunition should be planned for. Up to 25 percent of all HE rounds fired in urban areas are duds due to glancing off hard surfaces. Artillery fire support may be used in the direct or indirect fire role. Artillery and naval gunfire should be used:

- To disrupt or destroy an assault.
- To provide counterbattery fire.
- To support counterattacks.
- To provide direct fire when necessary.
- To provide countersniper fire.
- To clear enemy occupied buildings.

c. **Priorities of Fire.** Priorities of fire should be established based on enemy avenues of approach and threat systems that present the greatest danger to the defense. For example, during the attacker's initial advance, tanks, infantry fighting vehicles, and overwatching elements are the greatest threat to the defense. ATGMs should normally concentrate on destroying tanks first, then IFVs. Artillery and mortar fires should suppress and destroy enemy ATGMs and overwatch positions and units. If enemy formations secure a foothold, priority is shifted to the destruction of enemy forces within the penetration. When initiated, counterattacks are given priority of supporting

fires. When artillery is firing the missions as mentioned above, it must remain mobile and be prepared to displace to preplanned positions to avoid enemy counterbattery fire.

d. **Conduct of Fires**. As the enemy attack progresses in an urban area, fires are increased to separate infantry from supporting tanks and fighting vehicles. During this phase, friendly artillery concentrates on attacking infantry, counterfire missions, and the destruction of reinforcements that are approaching the city.

e. **Fire Support Plans**. At platoon level, fire plans include fires of organic, attached, and supporting weapons. The platoon leader plans mortar and artillery fires on top of and immediately around his battle positions for close support.

f. **Final Protective Fires**. Based on the location of platoon positions in relation to the most likely avenues of advance, the company commander should assign FPFs to platoon leaders. Each rifle platoon leader then assigns his machine guns sectors of fire and FPLs. These positions should be selected to provide interlocking grazing fire and mutual support between adjacent units. FPLs are fired on planned signals from the platoon forward observers. Proposed FPLs must be "walked out" to determine the extent of grazing fire available and to locate dead space, which can be covered by:

- Sniper fire.
- Grenade launchers.
- Mines and booby-traps.
- Indirect fires.

5-5. ANTIARMOR WEAPONS SYSTEMS

a. **Classifications.** There are three classifications of antiarmor weapons: heavy (TOW), medium (Javelin and Dragon), and light (M72 LAW, AT4). The SMAW (Marine Corps) and the RAAWS (Carl Gustav) (Ranger units), are classified as short range (around 500 meters) multipurpose weapons. These weapons may be available if these units are attached to a higher headquarters or if they are working within the platoon sector.

b. **General Considerations.** The urban environment will not change the tactical use of these weapons, but it can limit how they are deployed. Some of those limitations are: stand-off; displacement after engagements; firing in-depth engagements; more obstacles; increased danger zones; and all around security. Although antiarmor weapons are primarily designed to destroy armored vehicles, they also can be used to damage or destroy some field fortifications. Additionally, they can be used for ballistic breaching of doorways that are being used for entry points to

buildings, or by creating deceptions, just before the assault element enters the actual initial breach (entry) point. The larger systems that have highly magnified day and thermal sights can be used to locate snipers and to disrupt or kill them with long range missiles. Most antiarmor weapons have their own local security since they are crew served with the exception of the M72 LAW and the AT4, thus eliminating the need for the platoon to assign additional security. The platoon leader should not place any of these weapons outside his security net. When these weapons fire, they quickly become priority targets, making them susceptible to enemy fire. Major considerations for planning offensive and defensive operations are:

c. **Offensive Operations:**

(1) When employing antiarmor weapons in the offense, assign them to an area that overwatches the assault force and where ambushes are likely, such as roads; road intersections, alleys, and large open areas. Place them so they can establish a blocking force along main access routes to the objective and where they can isolate the objective against armor counterattacks. When selecting positions, pick the areas that:

- Offer cover and concealment for weapon and crew. Terrain will, in most cases, limit maximum range shots, making the weapon and crew more vulnerable to small arms weapons.

- Have no ground and overhead obstacles.

- Other crew served weapons can overwatch antiarmor positions.

- Offer escape routes.

NOTE: Overhead wire obstacles are the main concern when firing missiles. Wire obstacles will be prevalent throughout built-up areas causing problems with in flight missiles, wire guided missiles, and rockets. Overhead wires can deflect missiles from their flight path when their control fins make contact with the wire. Firing a wire guided missile over power lines can burn the tracking wires, causing the loss of the missile, and, possibly, causing damage to the weapon system and crew. Most missiles are armed 50 meters or more from the weapon.

(2) The SMAW and the RAAWS (Carl Gustav) were primarily designed for destroying heavy fortified positions, not as antiarmor weapons, though they are employed in the same manner. These weapons fire more than one type of round, especially the RAAWS (Carl Gustav) which is primarily a special operations weapon. Both of these weapons have a high explosive round for heavy fortified positions and a HEAT round for light/medium armor vehicles.

d. **Defensive Operations.** When assigning the heavy and medium weapons their engagement areas ensure that they are positioned in-depth to exploit their maximum ranges. This may not always be possible within built-up areas, with the amount of obstacles and short engagement ranges. Close engagement areas that limit standoff will only give the crew time for one shot, with no time for reloading if they have to fire multi-engagements. For this reason antiarmor weapons should always be deployed in pairs. One fires and the other supports by fire. When selecting firing positions consider:

- Positioning the weapons so they have interlocking fires.
- When engaging armor or light armor, have the antiarmor fire first, giving the crew time to displace for other engagements.
- Use organic weapons to mask the initial engagement to distract the threat from knowing where the round or rounds came from.
- Light weapons that are individually operated work best at short ranges when establishing ambushes along choke points. For controlled firing of these weapons, See FM 7-8, Chapter II, section XIII, paragraph 2-60, Methods of engagement with the M72 LAW and the AT4.

e. **TOW Weapon System.** There are no TOW systems organic to light infantry companies. They may be attached down to company and platoon levels. These weapon systems are used to defeat heavy or light armor threats from outside or inside the urban area, in lieu of assigned armored vehicles. They cannot apply the same amount of firepower but, when employed in pairs, they can destroy and disrupt armored units long enough to give commanders time to bring other assets into play. The TOW can engage targets at a range of 3,750 meters using a 13x-daysight or thermal sight. Some of the employment advantages and disadvantages of the TOW are:

(1) ***Advantages:***

- Offers greater range, accuracy, and lethality than other antiarmor weapons.
- Will destroy all known armor vehicles.
- Gives leaders far seeing OP capabilities day or night using the 13X day sight and thermal sight
- The HMMWV TOW carrier has a M60/M240 machinegun for crew safety, and can be used against dismounted enemy troops. This gives the leader a two-fold weapon when used to overwatch assault elements or when isolating buildings.

- The TOW system can assist in locating enemy snipers and destroy or disrupt them. When engaging a sniper in a building, aim at the wall next to the window or fortified position he is firing from. The structure will set off the missile warhead, causing inner spalling of the wall and tremendous heat within the room. If, by chance, a missile is fired through a window and impacts on a back wall, debris and heat from the explosion will permeate the room.

R-33, Detect Sniper: The location of the sniper may be determined by the use of an acoustic-based detection system.

b. ***Disadvantages:***

- The missile is wire guided, which restricts firing from elevated positions where power lines cross the engagement areas.
- The crew is vulnerable to small arms fire when mounted on the HMMWV carrier.
- The missile has a noticeable firing signature that can give away positions.
- The missile has dangerous backblast areas that restrict firing inside of structures.

f. **Javelin.** There are no Javelin systems organic to light infantry companies. They may be attached down to company and platoon levels. The Javelin is a crew-served, medium range, fire-and-forget system. Unlike conventional wire-guided missiles, the Javelin automatically guides itself to the target after launch. Soldiers can reposition immediately after firing or reload to engage another threat. The Javelin has two attack modes, the top-attack, and the direct-attack. The Javelin sight uses passive surveillance, day or night, at ranges of 2,000 meters, in most adverse weather conditions. Some of the employment advantages and disadvantages of the Javelin are:

(1) ***Advantages:***

- Has a soft launch design, which allows it to be safely fired from inside buildings or covered fighting positions.
- Will destroy all known armor vehicles.
- Gives leaders far seeing OP capabilities day or night using the 4X day sight and 4X and 9X thermal sight

- Offers more range, accuracy, and lethality, than the Dragon.

- Fire-and-forget, with no attached wires.

- In lieu of the TOW, the Javelin can assist in locating enemy snipers and destroy or disrupt them. When engaging a sniper in a building, aim at the wall next to the window or fortified position he is firing from. The structure will set off the missile warhead, causing inner spalling of the wall and tremendous heat within the room.

R-33, Detect Sniper: The location of the sniper may be determined by the use of an acoustic-based detection system.

(1) ***Disadvantages:***

- Overhead wires can impede the missile flight.

- The missile requires a large overhead clearance from launch point to target.

g. **Dragon.** The Dragon is a crew-served medium range antiarmor weapon that can be deployed to track and engage targets at a range of 1,000 meters, with a 4X day sight or 4X thermal sight. Some of the employment advantages and disadvantages of the Dragon are:

(1) ***Advantages:***

- Will destroy most armored vehicles.

- Can track and engage targets day or night.

(2) ***Disadvantages:***

- System is wire guided, which restricts firing from elevated positions where power lines cross the engagement areas.

- It has noticeable firing signatures that can give away positions.

- It has dangerous backblast areas that restrict firing inside structures.

5-6. SNIPERS

a. **Missions.** Snipers can be used as part of the security element to provide accurate, long-range fires. Snipers can provide significant input to reconnaissance and counterreconnaissance efforts. They can be dedicated to the countersniper role or be assigned priority targets. Snipers can also overwatch breaching operations and call for indirect artillery fires. (For more information on the offensive employment of snipers, see FM 71-2, FM 7-20, and TC 23-14.) Even if platoon are not assigned snipers by TO&E, trained marksmen can be designated to shoot at priority targets.

(1) ***Positions.*** General areas (a building or group of buildings) are designated as sniper positions, but the sniper selects the best position for engagement based on the mission given him. Masonry buildings that offer the best protection, long-range fields of fire, and all-round observation are preferred. The sniper also selects several secondary and supplementary positions to cover his areas of responsibility. The sniper selects positions that provide him with engagement areas but do not compromise his security. He selects positions that allow him to displace to other firing positions.

(2) ***Targets***. Engagement priorities for snipers are determined by the relative importance of the targets to the effective operations of the enemy. Sniper targets usually include tank commanders, direct fire support weapons' crewmen, crew-served weapons' crewmen, officers, forward observers, and radiotelephone operators.

(3) ***Limitations.*** Built-up areas often limit snipers to firing down or across streets, but open areas permit engagements at longer ranges. Snipers can be employed to cover rooftops, obstacles, dead space, and gaps in FPFs. One type of position a sniper can use is the rooftop (Figure 5-2.)

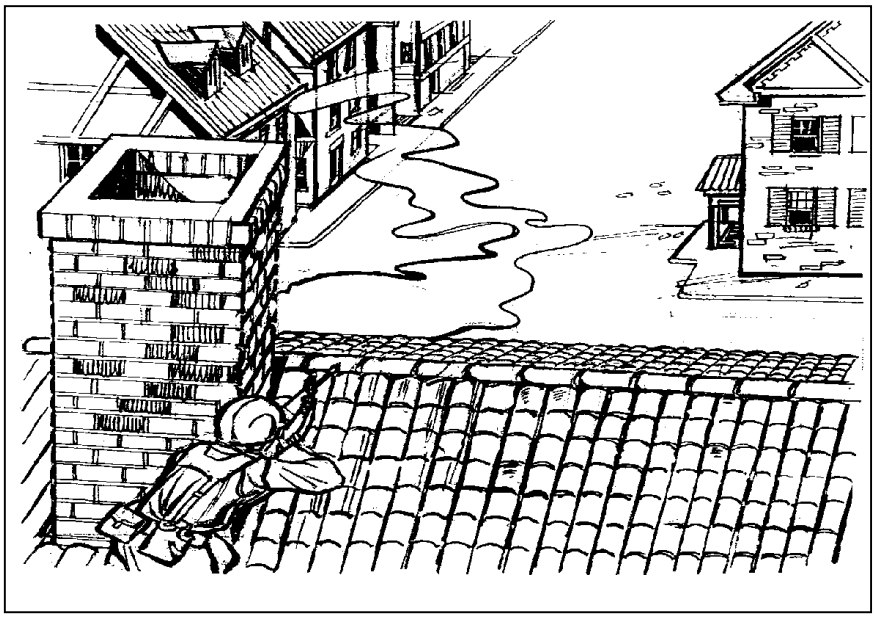


Figure 5-2. Rooftop sniper position.

(4) A chimney or other protruding structure provides a base from which a sniper position can be prepared. Part of the roofing material is removed to allow the sniper to fire around the chimney. He should stand inside the building on the beams or on a platform with only his head and shoulders above the roof (behind the chimney). Sandbags placed on the sides of the position protect the sniper's flanks.

(5) When the roof has no protruding structure to provide protection, the sniper position should be prepared from underneath on the enemy side of the roof. The position is reinforced with sandbags, and a small piece of roofing material should be removed to allow the sniper to engage targets in his sector. The missing piece of roofing material should be the only sign that a position exists. Other pieces of roofing should be removed to deceive the enemy as to the true sniper position. The sniper should be invisible from outside the building, and the muzzle flash must be hidden from view.

5-7. BATTALION SCOUT PLATOON

a. The battalion scout platoon is organized, equipped, and trained to conduct reconnaissance, surveillance, and limited security. It can also assist in the control, movement, and positioning of units. The scout platoon is normally employed under battalion control.

b. Depending on the situation and terrain, the battalion scout platoon may provide a security force forward in the built-up area to give early warning of enemy activity. Upon withdrawal of the security force, the scout platoon may be given the

mission to ensure flank or rear security, to occupy a defensive sector (or battle position), to conduct subterranean operations, or to stay in reserve.

R-5A, Intelligence Collection/Dissemination: Leaders should consider the use of an Unmanned Aerial Vehicle (UAV) for overflight mapping and reconnaissance of a objective area. This will allow reconnaissance of the objective area without the enemy learning the strength, location, or intentions of the main element.

R-5B, Intelligence Collection/Dissemination: Leaders should consider the use of an Unmanned Ground Vehicle (UGV) for reconnaissance of the inside of tunnel systems, buildings, and other objective areas. This will allow reconnaissance of the objective area without the enemy learning the strength, location, or intentions of the main element.

5-8. COMBAT SUPPORT UNITS

a. **Air Defense.** Air defense assets available to the ground commander, such as Stinger and Vulcan, are normally employed to ensure all-round air defense. The lack of good firing positions for long-range air defense missile systems in the built-up area may limit the number of deployed weapons. In the defense, weapons systems may have to be winched or airlifted into position. Rooftops and parking garages are good firing positions because they normally offer a better line-of-sight. Stinger and Vulcans can be assigned the missions of protecting specific positions or in general support of the battalion. Consideration should be given to the use of the Vulcan in a suppressive role on ground targets.

b. **Ground Surveillance Radar.** If attached, GSR is best employed on the outskirts of built-up areas because of the line-of-sight problems within the area. During limited visibility, if suitable avenues exist, GSR can be placed to monitor sectors. Because of the normal ranges found in built-up areas and the likely narrowness of the sector ranges, GSR can be vulnerable to detection and direct fire. Cross vectoring is important in this environment.

c. **Military Police (MP) units.** MP units provide support and must be tailored to meet requirements of the task force. MP units can perform the following tasks:

- Advisory training assistance.
- Combined police operations.
- Enforcement and investigations.

- Police-community relations.
- Police intelligence.
- Populace and resource control.
- Processing of prisoners of war and civilian internees or detainees.
- Security.
- Operations security.
- Tactical operations.
- Military working dog operations.

d. **Civil Affairs (CA) and Psychological Operations (PSYOPS) elements.** US commanders should know that any military action might have civil affairs and psychological implications. Since most Army personnel do not have full knowledge of CA and PSYOPS, CA and PSYOPS units should be employed to support the operation of US forces.

(1) CA personnel and units engage in a variety of activities. Civil-military relations, military-civic action, populace and resource control, and handling of refugees are important areas for CA.

(2) PSYOPS personnel and units support all aspects of nation-building programs. Military PSYOPS provide the commander with methods he can use to accomplish his mission. All military operations should be evaluated in terms of their effect on national and regional PSYOPS objectives. Both positive and negative factors must be evaluated to identify PSYOPS tasks that contribute to mission accomplishment.

e. **Signal Unit.** This element must be prepared to coordinate and provide communications means to accomplish the mission and any contingencies. This includes the use of many small-unit operations over a vast area.

- Communication with high levels of command.
- Communication with SOF personnel in the area.
- Communication with local military, paramilitary, and police.

5-9. BREACHING

To conduct a breach, three methods are used: ballistic, mechanical, and explosive. In all cases, the breacher or breaching element effects the breach, maintains the breach if required, and then, if part of the assault team, transitions to his function on the assault team end enters the breach.

a. **Ballistic Breaching.** For exterior walls, use of a BFV or artillery piece in the direct fire role is ideal if the structure will support it and if the ROE allow it. The main gun of an M1 tank rarely produces the desired effect because of its penetrating power. Small arms may be used to breach many exterior or interior doors. In some cases, depending on the construction material, small arms can also breach exterior walls. However, ballistic breaching of walls by small arms fire is normally an alternate means of gaining entry. Ballistic breaching should never be considered the primary method for gaining initial entry into a structure because it is not a positive means of gaining entry. It may not supply the surprise, speed, and violence of action necessary to minimize friendly losses on initial entry. Ballistic breaching may have to be followed up with a grenade or distraction device before entry.

- In certain situations, it may become necessary to use ballistic breaching as an initial entry method. A misfire of an explosive charge or the compromise of the assault force during its approach to the target may necessitate the use of ballistic breaching as a means of initial entry into the structure.

- Once initial entry is gained to a building, ballistic breaching may become the primary method for gaining access to subsequent rooms within the structure. Surprise is lost upon initial entry, and other breaching methods are often too slow and tend to slow the momentum of the assault team. If a door must be used for entry, several techniques can be used to open the door. Doors are a fatal funnel and are usually covered by fire or are booby-trapped.

(1) ***Automatic weapon.*** Soldiers force the door open using short bursts of automatic fire aimed at the door locking mechanism. The firer must position himself at a 45-degree angle to the point of impact. This prevents the enemy from firing through the door and hitting him. It also prevents getting hit by ricochets from his own fire (Figure 5-3).

Figure 5-3. Automatic weapon fire ballistic breach.

(2) ***Shotgun.*** Although there are several different types of shotgun rounds that can be very effective in breaching, the shotgun should not be used as a primary assault weapon because of its limited magazine capacity and the difficulty of reloading the weapon.

(a) *Weapons placement and employment.* The firer stands to one side of the door, not directly in front of the door. The firer holds the butt stock of the shotgun in the pocket of his shoulder. The end of the barrel is held as close as possible, but not flush against the target. Placing the barrel against the target could alert the enemy to the presence of friendly troops.

WARNING

The shotgun should not have a round in the chamber until the firer is ready to shoot. After the transition, the breach man does not always have his hands on the shotgun (when transitioning to the M4 or M16). This could possibly cause an accidental discharge. The safest way to carry the shotgun is with the breech closed, hammer forward, chamber empty (or on an expended cartridge), and the weapon on "fire".

NOTE: The doorknob itself is **NEVER** targeted because when it is hit by the round it tends to bend the locking mechanism into the door frame, which will in most cases bind the door in place, thus preventing entry.

- Locking mechanism. The shotgun is aimed down at a 45-degree angle between the doorknob and the doorframe, firing into the locking mechanism. The firer squeezes off one round and is prepared to fire additional rounds (Figure 5-4).

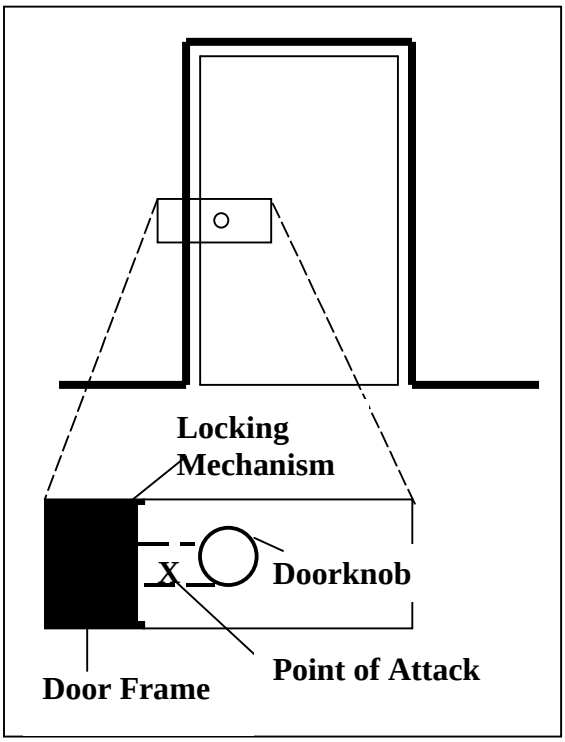


Figure 5-4. Front view of locking mechanism.

- Hinges. Engage the top hinge first. Aim the shotgun to eliminate the maximum number of screws with one shot. Be prepared to re-engage the hinge to destroy the remaining screws. All shots should go through the hinge and into the door jam. Once the top hinge is destroyed, move and engage the middle hinge. Utilize the same technique on the screws. Engage the bottom last and this will allow gravity to assist the breach. Because the hinges are often hidden from view, the hinge breach is more difficult (Figure 5-5).

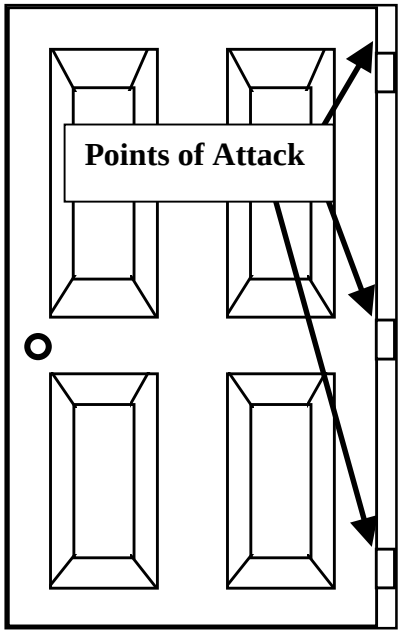


Figure 5-5. Hinge target points of attack.

(b) *After engaging the target.* The firer kicks in or pulls out the door as per situation. The firer raises the shotgun and steps out of the way. He then transitions to his primary weapon and, if part of the assault element, follows the other element members into the room as the last man. This requires two hands-free slings. It is not recommended that the shotgunner use the shotgun as a principal weapon for room entry.

R-30B, Rifle Launched Entry Munition: The assault team should consider the use of breaching devices such as the rifle launched entry munition to force open doors, windows, and to create mouseholes.

(3) **Rifle Launched Entry Munitions (RLEM):** The RLEM allows a remote breach of an exterior door or window without having the assault or breaching element physically present at the breach (entry) point. This allows the assault element to assume a posture for entry in the last covered and concealed position prior to the breach. The RLEM firer should not normally be part of the assault element. He should be part of the breaching or support element. This allows the RLEM to be fired from one position while the assault element waits in another position. In the event that the first round does not effect the breach, either the firer should prepare a second round for the breach or a second firer should be prepared to engage the target.

Figure 5-6. Rifle Launched Entry Munitions (RLEM).

WARNING

Firer must be a minimum of 10 meters from target to safely employ a 150-gram round.

NOTE: Exact minimum safe distance for firers and assault elements have not been established for each type of round.

TYPE OF ROUND	TARGET
50 GRAM	Solid wooden door or window.
150 GRAM	Solid metal doors opening inward. Solid metal doors opening outward.

Table 5-1. Type of round versus type of target.

NOTE: An RLEM round of any size is usually ineffective on hollow wooden doors because it blows a hole in the door without removing the door. It can be effectively used if targeted against the locking mechanism.

NOTE: More than one round may be required to effect the breach. A second round should always be prepared.

WARNING

The RLEM is not currently a bullet-trap type of munition. 5.56-mm ball ammunition will damage the RLEM producing an unexploded explosive hazard

WARNING

If movement is conducted after placing a round onto end of weapon, ensure the round seating is checked again before firing. The round could slide away from the end of the barrel and affect firing performance.

R-27, Man Size Hole: Consider the use of the Beast or Explosive Cutting Tape (ECT) for creating man sized breaches both on the exterior and interior of buildings allowing soldiers access for assaulting and movement in and through buildings.

b. **Mechanical Breaching.** This technique of breaching must always be planned as a backup to explosive or ballistic breaching. All units must be prepared to conduct mechanical breaching. Tools such as Hooligan's Tools, crowbars, saws, sledgehammers, bolt cutters, or axes can be used. This technique is driven by the conditions of METT-T. This is the least favored technique since it is difficult and tiring to the soldier. It also gives any enemy soldiers within the room ample warning and time to shoot through the door. However, if surprise has been achieved, and the presence of the assault element has not been detected, a quick, quiet mechanical breach may provide an effective means of entry.

R-30A, Breaching Devices: When explosives cannot be used or are not appropriate or available for breaching, the assault team should consider the use of breaching devices such as the Hooligan's Tool, etc, to force open doors, windows, and to create mouseholes.

NOTE: Mechanical breaching of a room can be conducted not only on doors but also walls, ceilings, and floors.

R-14C, Personal Protection Kit Version C: Before entering and clearing buildings, use special protective gloves and sleeves to protect against cuts and abrasions.

(1) ***Tools.***

(a) *Prying tools.* Hand prying tools use leverage to provide a mechanical advantage. These tools are very effective in breaking locks, opening doors, and forcing windows. Hooligan's tools, crowbars, and various pry bars are all types of prying tools (Figures 5-7 and 5-8).

Figure 5-7. Percussion Rescue Tool.

NOTE: The Hooligan's Tool is a generic name for any of several commercially produced mechanical breaching tools. It has a combination of components such as exaggerated hammer claws, a pick, and an adze. Although it can be quite effective, it takes special training to learn how to use it effectively as a quick breaching tool.

Figure 5-8. Hooligan's Tool

(b) *Striking tools.* Characterized by large, weighted heads on handles, striking tools are the most common and basic hand tools. This category of tool includes battering rams, sledgehammers, hammers, and picks.

(c) *Cutting tools.* Cutting tools are the most diversified of the tool groups. However, most cutting tools are designed to cut only specific types of materials. Use on the wrong type of materials can be a safety hazard to the operator and damage the tool. Cutting tools may be either manual or powered (Figure 5-9).

Figure 5-9. Crash Axe.

(d) *Specialized breaching (entry) Tools.* There are several types of commercially produced tools which are very effective for door entry. One of these is the Hydra-Ram hydraulic breaching device. It spreads the doorjamb to defate the locking mechanism (Figure 5-10).

Figure 5-10. Hydra Ram.

(2) ***Targets.***

(a) *Doors.* From a soldier's standpoint of forcible entry, doors may be classified as swinging, revolving, sliding, or overhead. Regardless of the type of door, once the door has been checked for booby traps, soldiers should first check if the door is locked before force is used.

(b) *Windows.* Windows present easy access. Glass can usually be easily broken but soldiers are slowed by the size and height of windows. There are several techniques to be used to enter windows quickly. They are detailed in para. 3-3. h. Not all windows are made of glass. Lexan plastic windows look like glass but are 250 times stronger than safety glass and 30 times stronger than Plexiglas. These types of windows can be found on storefronts and banking types of structures. When presented with a Lexan window, discharge a carbon dioxide fire extinguisher on the window to make it brittle and then strike it with a pick or a Hooligan's tool.

(c) *Floors.* There are almost as many kinds of floors as there are buildings. Floor construction is, however, limited to the basics: wood and concrete. Either of the two may be finished with a variety of flooring materials. Large buildings such as commercial multi-story structures usually have concrete floors whereas multi-story family dwellings usually have wooden floors.

(d) *Walls*. The method of breaching a wall will be highly dependent on the type of construction material.

(e) *Roofs and ceilings*. Because roofs and ceilings are constructed basically the same as floors, the procedures for breaching are the same.

c. **Explosive Breaching.** One of the most difficult breaching operations faced by the assault team is the breaching of masonry and reinforced concrete walls. When explosives must be used, composition C4 is the ideal charge. Normally, building walls are 15 inches thick or less. Assuming that all outer walls are constructed of reinforced concrete, a rule of thumb for breaching is to place 10 pounds of C4 against the target between waist and chest height. When detonated, this normally blows a hole large enough for a man to go through. However, on substandard buildings, a charge of this size may have the affect of rubbling the building.

R-27, Man Size Hole: Consider the use of the Beast or Explosive Cutting Tape (ECT) for creating man sized breaches both on the exterior and interior of buildings, allowing soldiers access for assaulting and movement in and through buildings.

(1) ***Breaching walls, ceilings, and floors.***

(a) *Charge placement.* Place charges directly against the surface that is to be breached unless a shaped charge is used. When enemy fire prevents an approach to the wall, a technique may be to attach the breaching charge to a pole and slide it into position for detonation at the base of the wall untamped. Small-arms fire will not detonate C4 or TNT. Take cover before detonating the charge.

(b) *Tamping.* Whenever possible, explosives should be tamped or surrounded with material to focus the blast to increase their effectiveness. Tamping materials could be sandbags, rubble, desks, chairs, and even IV bags. For many exterior walls, tamping of breaching charges could be impossible due to enemy fire. The untamped charge requires approximately twice the explosive charge to produce the same effect as an untamped charge.

(c) *Second charges.* Breaching charges will not normally cut metal reinforcing rods inside concrete targets. Hand grenades should be thrown into the opening to clear the area of enemy. Once the area has been cleared of enemy, the reinforcing rods can be removed using special steel cutting explosive charges or ballistic or mechanical means.

(2) ***Creating mouseholes.*** Mouseholes provide the safest method of moving between rooms and floors during a defense. They can be created with C4 when lesser means of mechanical breaching fail to work. Since C4 comes packaged with an adhesive backing or can be emplaced using pressure-sensitive tape, it is ideal for this purpose. When using C4 to blow a mousehole in a lath and plaster wall, one block or a strip of blocks should be placed on the wall from neck-to-knee height. Charges should be primed with detonating cord or electrical blasting caps to obtain simultaneous detonation, which will blow a hole large enough for a man to fit through.

(3) ***Expedient breaching methods.*** The internal walls of most buildings function as partitions rather than load-bearing members. Smaller explosive charges can be used to breach them. In the absence of C4 or other military explosives, using one or more fragmentation grenades or a Claymore mine can breach some internal walls. These devices should be tamped to increase their effectiveness and to reduce the amount of explosive force directed to the rear.

(4) ***Door breaching charges.*** Several different field-expedient charges can be used to breach interior or exterior doors. Among these are the general-purpose charge and the flexible linear charge. All can be made ahead of time and are simple, compact, lightweight, and easy to emplace.

(5) ***Windows and restrictive entrances.*** Regardless of the breaching technique used to gain entry, if the breach location restricts fundamental movement into the room or building, local or immediate support must be used until the assault element can support itself. For example, a window is selected for entrance into a building. Immediate support from the same window while soldiers move through it into the room may not be feasible due to the size of the window. Another window that has access to the same room may be used to overwatch the lead assault elements movement into the room. The local support can come from the initial assault team or member(s) of the team designated to enter the breach location second.

d. **Explosives for Defensive Use.** The use of explosives in defensive operations is the same as in offensive operations. Charge placement, tamping, and effectiveness are the same; just the task given for the demolition mission is different. When defending a built-up area, explosives are used to create covered and concealed routes through walls and buildings that can be used for withdrawals, reinforcements, or counterattacks. Explosives are also used to create obstacles and clear fields of fire. The engineers must furnish technical assistance for selective rubbling. Normally, buildings can be rubbled by using shaped charges or C4 on the supports and major beams of buildings. See FM 5-250, Explosives and Demolitions, for specific details.

e. **Explosive Charges.** Specific expedient devices for offensive and defensive use in an urban environment are found in FM 5-250, Explosives and Demolitions; in FM 90-10-1, Appendix C; and in FM 5-34, Engineer Field Data Handbook. Many can be found in the MOUT ACTD Handbook #3, Experimental Individual Tasks for the Infantryman in Urban Combat. Considerations for use are in Table 5-2.

BREACHING MATRIX

CHARGE	OBSTACLE	EXPLOSIVES NEEDED	ADVANTAGES	DISADVANTAGES
Flexible Linear Charge	Wooden doors; cuts door along the length off the charge.	Detonation cord	- Small, lightweight - Quick to place on target - Several can be carried by one man - Will defeat most doors regardless of locking systems	
General Purpose Charge	Door knobs, mild steel chain, locks, or equipment	C4, Detonation cord; Detaprime booster	- Small, lightweight - Easy to make - Very versatile	- Creates shrapnel - Other locking mechanisms may make charge ineffective
Silhouette Charge	Wooden doors; creates man-sized hole. Selected walls (plywood, sheetrock)	Detonation cord; FLSC; Detaprime booster	- Minimal shrapnel - Easy to make - Makes entry hole to exact specifications	- Bulky
Rubber Strip Charge	Wood or metal doors; dislodges doors from the frame, windows with a physical security system	Sheet Explosive; Detaprime booster; Detonation cord	-Small, easy to carry -Uses small amount of explosives -Quick to place on target	-Rubber backing flies to the rear -Danger of secondary fragments
Chain-link Ladder Charge	Rapidly creates a hole in chain-link fence large enough to run through	C4; Detonation Cord; Detaprime Boosters		
Doughnut Charge	Doorknobs on wood or light metal doors	Detonation cord	- Small, lightweight - Easily transported - Quick to place on door	- Other locking mechanisms may make charge ineffective
Wall Breach Charge	Breaches through wood, masonry, or brick walls	Detonation cord; C4; Detaprime booster	- Easy and quick to make - Quick to place on target	- Will cause shrapnel - Does not destroy rebar - High overpressure

Table 5-2. Breaching matrix.

CHARGE	OBSTACLE	EXPLOSIVES NEEDED	ADVANTAGES	DISADVANTAGES
Shooting Hole Charge	Makes hole in wood, masonry, or brick	Detonation cord; C4; (Optional Detaprime boosters)		
Brashier Breach Charge	Creates a hole in triple-standard concertina wire and chain-link fence large enough to drive a vehicle through.	C4; Detonation cord; Detaprime boosters	- Easy to make - Easy to emplace	- Only 50% chance of completely cutting reinforced triple strand wire.
Water Impulse Charge	Opens light metal doors and wooden doors.	Detonation cord; Detaprime booster;	- Easily constructed - Low fragmentation if prop stick is not used.	- Missile hazard if prop stick is used. - Likely that liquids could spill during transportation if bottle is not tightly resealed. - Attachment method has to be carefully considered.

Table 5-2. Breaching matrix.

R-27, Man Size Hole: Consider the use of the Beast or Explosive Cutting Tape (ECT) for creating man sized breaches both on the exterior and interior of buildings, allowing soldiers access for assaulting and movement in and through buildings.

DANGER

THE GREATEST DANGER TO FRIENDLY PERSONNEL FROM DEMOLITIONS IS THE DEBRIS THROWN BY THE EXPLOSION. LEADERS MUST ENSURE THAT PROTECTIVE MEASURES ARE ENFORCED. THE FOLLOWING ARE THE RULES FOR USING DEMOLITIONS:

- **KEEP THE FUZE IGNITER UNDER THE CONTROL OF AN NCO.**
- **WEAR HELMETS AT ALL TIMES WHILE FIRING EXPLOSIVES.**
- **HANDLE MISFIRES WITH EXTREME CARE.**
- **CLEAR THE ROOM AND PROTECT PERSONNEL WHEN BLOWING INTERIOR WALLS.**
- **USE C4 TO BREACH HARD TARGETS (MASONRY CONSTRUCTION).**
- **DO NOT TAKE CHANCES.**
- **DO NOT DIVIDE RESPONSIBILITY FOR EXPLOSIVE WORK.**
- **DO NOT MIX EXPLOSIVES AND DETONATORS.**
- **DO NOT CARRY EXPLOSIVES AND CAPS TOGETHER.**

R-30A, Breaching Devices: When explosives cannot be used or are not appropriate or available for breaching, the assault team should consider the use of breaching devices such as the Hooligan's Tool to force open doors and windows, and to create mouseholes.

5-10. BOOBY TRAPS

Booby traps are cunning devices and are usually explosive in nature. They are actuated when an unsuspecting person disturbs an apparently harmless object or performs a presumably safe act. Booby traps are designed to kill or incapacitate. They are constructed using specially designed military enhancements and standard service ammunition, or they are improvised using any suitable material. Booby traps cause unexpected, random casualties and damage. They create an attitude of uncertainty and suspicion in a soldier's mind lowering his morale and inducing a degree of caution that restricts or slows his movement. In conventional operations, most booby traps in the combat zone are constructed using military equipment and ammunition. Improvised traps are found most often during counterinsurgency missions in low-intensity conflicts.

a. All soldiers must be aware of the threat presented by booby traps. They must also receive sufficient training to recognize locations and items that lend themselves to booby-trapping. Avoid overemphasis and strike a balance between what is possible and what is probable. For example, overemphasis of booby-trap threat can be counterproductive by slowing momentum. This causes casualties that might otherwise have been avoided. On the other hand, where the use of booby traps and improvised

explosive devices are probably widespread, training must be given high priority and emphasized at all levels.

b. Although many booby-trapped sites are similar, the items selected, reasons for their use, and scales of the threat are quite different. Booby traps are often used in recently contested areas. By anticipating the presence of traps, it is possible to isolate and bypass trapped areas. If this is not practical, you can plan countermeasures such as avoiding convenient and covered resting-places along routes where mines can be located. Ensure that bridge or ferry sites that cannot be avoided are free of traps. In low-intensity conflicts where booby traps are used to cause casualties, delays, or disruptions, no items or areas can be considered safe. Quality collective training in booby trap awareness is necessary for all units. Rapidly disseminate booby trap incident reports to all levels. This allows personnel to develop an understanding of the enemy's method of operation and a feel for what might or might not be targets.

c. **Types of Traps.** Booby traps are designed to:

(1) Be actuated by persons carrying out their normal duties. This type of trap cannot be specifically guarded against because there is nothing about them or their situation to cause suspicion.

(2) Take advantage of human nature. This type can often be detected because they are designed to make a person do something. The following traps fall in this second category:

- Bait. A bait trap usually consists of objects that arouse someone's interest. They often consist of attractive or interesting items that have apparently been left behind or discarded during a rapid evacuation.

- Decoy. The most common decoy consists of two traps--one designed to be detected, and the other designed to be actuated while the first is being dealt with. The first trap can be a dummy. A classic form of decoy is to place booby traps or nuisance mines in locations from which the decoy mine can be pulled.

- Bluff. A bluff is a hoax and usually consists of a dummy trap.

- Double bluff. A double bluff only appears to be a bluff. The person clearing traps thinks the trap is safe or can be disarmed. For example, the enemy can set a number of traps that are disarmed when the detonating cord is removed from the charge. The double bluff is achieved by setting another trap that appears to be the same, but actually explodes when the detonating cord is removed from the charge. Double bluffs rely on a reduced awareness and alertness caused by repetition.

d. **Components and Principles.** There are two types of explosive booby traps--electric and nonelectric (Figure 5-11). Both types can be constructed using many different firing devices. Firing devices can be secured to the charge (direct connection) or located some distance from it (remote connection). They are actuated by one or more methods. It is impossible to describe every booby trap that can be encountered; however, most are constructed and operated by using components and principals similar to those listed below.

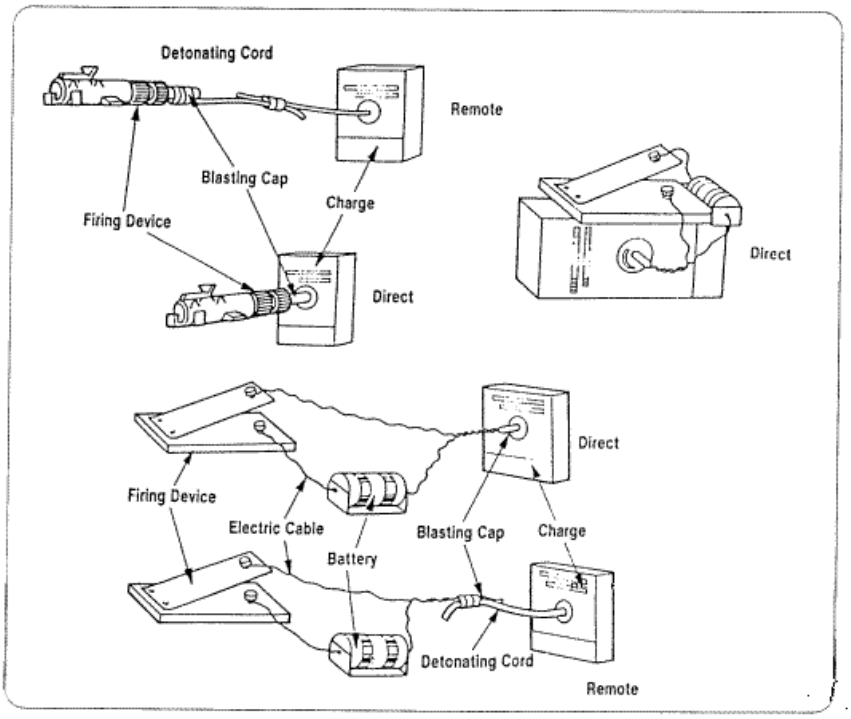


Figure 5-11. Typical electric and nonelectric booby-traps.

- Firing device.
- Power source (battery, for example).
- Connection (usually detonating cord or electric wire).
- Blasting cap.
- Main charge.

e. Actuation Methods. Occasionally, electric devices that detect interrupted light beams, variations in acoustic levels, or magnetic influence, actuate booby traps.

Most firing devices found in the combat zone are simple mechanisms designed to be actuated by pull, pressure, pressure release, or tension release (Figure 5-12).

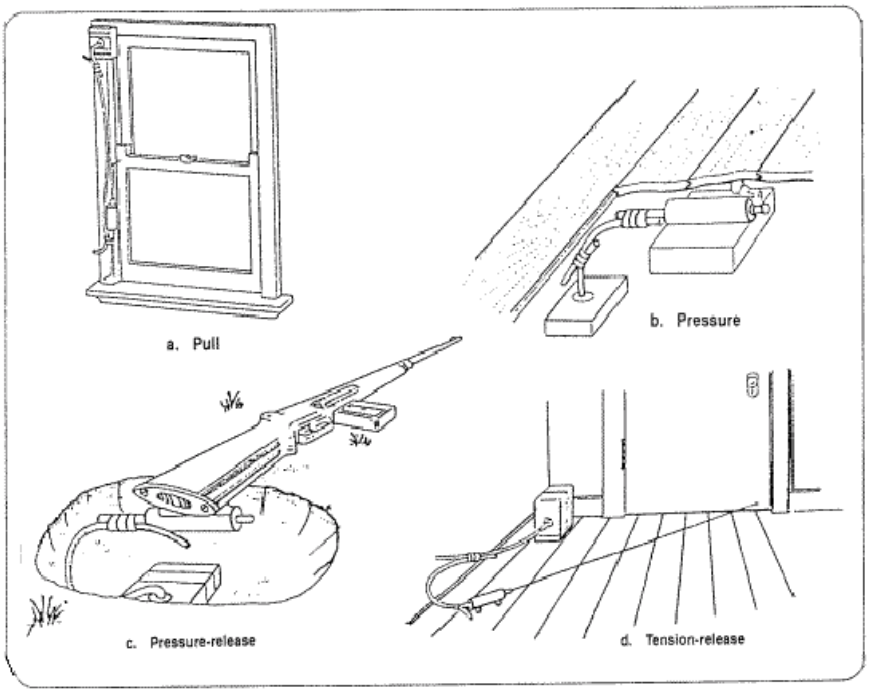


Figure 5-12. Methods of actuation.

f. The following rules and safety procedures can save lives:

- Suspect any object that appears to be out of place or artificial in its surroundings. Remember what you see might well be what the enemy wants you to see.

- Examine mines and booby traps from all angles and check for alternative means of firing before approaching them.

- Ensure that only one man works on a booby trap.

- Do not use force. Stop if force becomes necessary.

- When tracing trip wires, check for further traps located along and beneath them.

- Do not touch a trip wire until both ends have been investigated and all devices are disarmed or neutralized.

- Treat all parts of a booby trap with suspicion because each part can be set to actuate the trap.

- Wait at least 30 seconds after pulling a booby trap or mine. There might be a delay fuze.

- Mark all traps until they are cleared.

- Expect constant change in enemy techniques.

- Never attempt to clear booby traps by hand when pulling or destroying in place is possible and acceptable.

g. **Detection.** In urban areas, mine detectors are probably of little use because of the massive amounts of metal present in mad-made structures. You have to rely on manual search techniques and, if available, special equipment. Successful booby trap detection depends on two things:

(1) ***Awareness.*** Be aware of what might be booby-trapped and why.

(2) ***Ability.*** Be able to recognize evidence of setting.

R-5B, Intelligence Collection/Dissemination: Consider the use of an Unmanned Ground Vehicle (UGV) for reconnaissance of the inside of tunnel systems, buildings, and other objective areas. This will allow reconnaissance of the objective area and possible detection or set-off of booby traps without exposing soldiers to them.

The first requirement demands a well-developed sense of intuition; the second, a keen eye. Intuition, like mine sense, is gained through experience and an understanding of the enemy's techniques and habits. A keen eye is the result of training and practice in recognizing things that indicate the presence of a trap. The presence of booby traps or nuisance mines is indicated by:

- Disturbances of ground surface or scattered, loose soil.

- Wrappers, seals, loose shell caps, safety pins, nails, or pieces of wire or cord.

- Improvised methods of marking traps, such as piles of stones or marks on walls and trees.

- Evidence of camouflage, such as withered vegetation or signs of cutting.

- Breaks in the continuity of dust, paint work, or vegetation.
- Trampled earth or vegetation or footprints.
- Lumps or bulges under carpet or in furniture.
- A "sixth sense", or something that just does not feel right.

h. **Marking.** Booby traps and nuisance mines can be placed in diverse locations. Any form of prominent, permanent marking can be used.

i. **Exterior Reconnaissance and Entry.** Before approaching a building, check the surrounding area for booby traps and nuisance mines. The team leader then carries out a reconnaissance to determine the point of entry and clears the way to it. When selecting the point of entry, consider the following points:

(1) ***Doorways.*** Never consider doorways to be safe, unless the door is fully open and the entrance is clear. For example, if a house is built on a concrete slab, it is not likely to have a pressure firing device located in the floor.

(2) ***Windows.*** Windows are excellent locations for booby traps. Pay particular attention to the ground outside and the floor inside because they are classic sites for pressure firing devices. Use the following procedures if access must be gained through a window:

- Pull the window if it is unsecured and can be moved. If it is secure, use a small charge or a heavy object to break the glass.
- If there is a choice between a window that can be opened and one that cannot, select the latter.
- Deal with blinds and curtains in a manner similar to procedures used for windows.
- An explosive charge will both open the window entry and possibly set off booby traps.

(3) ***Man-sized holes and mouseholes.*** If you decide not to enter the structure through a door or window, use explosives (if possible) to make a man-sized hole or a mousehole in the wall, roof, or floor. This offers a remote, safe method of creating an access point and can also detonate nearby traps.

R-27, Man Size Hole: Consider the use of the Beast or Explosive Cutting Tape (ECT) for creating man sized breaches both on the exterior and interior of buildings, allowing soldiers access for assaulting and movement in and through buildings.

j. **Precautions During Search.** Use the following techniques and precautions when searching buildings.

- Check both sides of a door before opening it. Drilling a hole through the door and using a mirror to check the other side can do this. Doors can be further checked or opened by pulling or by blowing the lock and hinges with a small charge.

- Examine floor coverings for signs of disturbance. Loose floorboards, bulges/tears in carpets or throw rugs, or loose tiles, often indicate the presence of firing devices.

- Use a pulling cable to move furniture and to open cupboard doors and drawers.

- Check upholstered furniture and beds by remotely dropping a heavy object on them.

- Since electrical wiring provides a readymade circuit for booby traps, treat every switch with suspicion. To explode all traps connected to the normal power supply, disconnect the power at the fuze board, turn all switches on, and then reconnect the power. Repeat the procedure with the switches turned off in case the switch has been reversed. Remember that this procedure will not disclose traps that use a battery. Exercise caution when using switches, even if the power is disconnected.

- After doors, windows, cupboards, and drawers have been cleared, leave them open.

- Clearly mark all routes, areas, items that have been cleared, and items that have not been cleared.

- Check plumbing by remotely turning on all water taps and allowing the water to run for at least one minute.

- Check toilet tanks before flushing. In dark places, such as attics and chimneys, beware of light-sensitive devices.

- After pulling anything, allow at least 30 seconds for an explosion because there might be a delay fuze.

r. **Clearance Methods.**

(1) ***Pulling.*** This method uses a cable and grapnel to pull the trap. It is used when the resulting damage is acceptable. It is the safest method and is particularly applicable to traps set in open areas. Do not disturb any part of a booby trap when placing the grapnel and pulling the cable. Carefully select the site from where the pull is to be made because it might be mined or trapped. When a booby trap is pulled and does not explode, wait at least 30 seconds before approaching it in case delay devices have been used. Disposal of unexploded traps depends on their condition when inspected. The procedure for pulling booby traps is similar to that for pulling mines.

- Trip wires. Check the cover area for AP devices before proceeding. Place the grapnel hook as close as possible to the trip wire. Do not touch the trip wire until the pulling party is behind cover.

- Pull and release. Pull away objects that conceal and operate pull and release mechanisms.

- Pressure mechanism. Pull pressure mechanisms out from under objects that conceal and operate them. If this is not possible, blow them in place.

- In many cases, it might be easier to pull the charge than the firing device. Take extreme care when attempting this. Additional mechanisms are often concealed in or under the main charge.

(2) ***Destroying in place.*** When destroying booby traps in place, explode a small charge near the booby trap's charge. Again, use this method only if damage from the explosion is acceptable. When it is impossible to place the explosive close enough to ensure actuation of the main charge, carefully place it alongside the mechanism. Do not assume the main charge is safe to handle just because the mechanism has been destroyed. Actuate pressure mechanisms by suspending one-half pound of explosive above the pressure plate.

(3) ***Clearing by hand.*** This method involves neutralizing, disarming, removing, and disposing traps without causing damage. It is extremely hazardous and should only be used when pulling or destroying traps in place is impossible or unacceptable. It is best left to demolitions experts.

(4) ***Explosive line charge.*** Using this device produces quick results when only a narrow path is required through a booby-trapped area. It only gives clearance for the

same distance to either side, as it will against mines, and then only where it is in contact with the ground.

DANGER
THERE IS NO GUARANTEE THAT ANY BREACHING METHOD WILL ELIMINATE BOOBY TRAPS.

5-11. FLAME WEAPONS

Flame weapons are characterized by both physical and psychological casualty-producing abilities. Flame does not need to be applied with pinpoint accuracy, but it also must not be allowed to spread to structures needed by friendly forces. Large fires in built-up areas are catastrophic. If they burn out of control, fires can create an impenetrable barrier for hours. The most common United States flame weapons are the M202 FLASH and the M34 white phosphorus (WP) grenade. The M202 FLASH is still stored in war stocks although its use in training is prohibited.

a. **Employment.** Flame weapons used against fortified positions should be aimed directly at the aperture. Even if the round or burst misses, enough flaming material enters the position to cause casualties and to disrupt the enemy occupants. The M34 WP grenade is difficult to throw far or into a small opening such as a bunker aperture. However, its effects are dramatic when thrown into a room or building.

b. **Effects.** The two standard flame weapons have different effects against typical urban targets.

(1) ***M202 FLASH***. The M202 FLASH can deliver area fire out to 500 meters. In combat in built-up areas, the range to targets is normally much less. Point targets, such as an alleyway or bunker, can usually be hit from 200 meters. Precision fire against a bunker aperture is possible at 50 meters.

(a) The FLASH warhead contains a thickened flame agent that ignites when exposed to air. The minimum safe combat range is 20 meters, which is the bursting radius of the rocket warhead due to splashback. If the projectile strikes a hard object along its flight path and breaks open, it will burst into flames even if the fuze has not armed. M202 rocket packs must be protected from small-arms fire and shell fragments that could ignite them. The M202 has a backblast that must be considered before firing (Figure 5-13). Urban conditions affect this backblast exactly the same as the LAW. The same considerations for firing a LAW from an enclosed area apply to the M202.

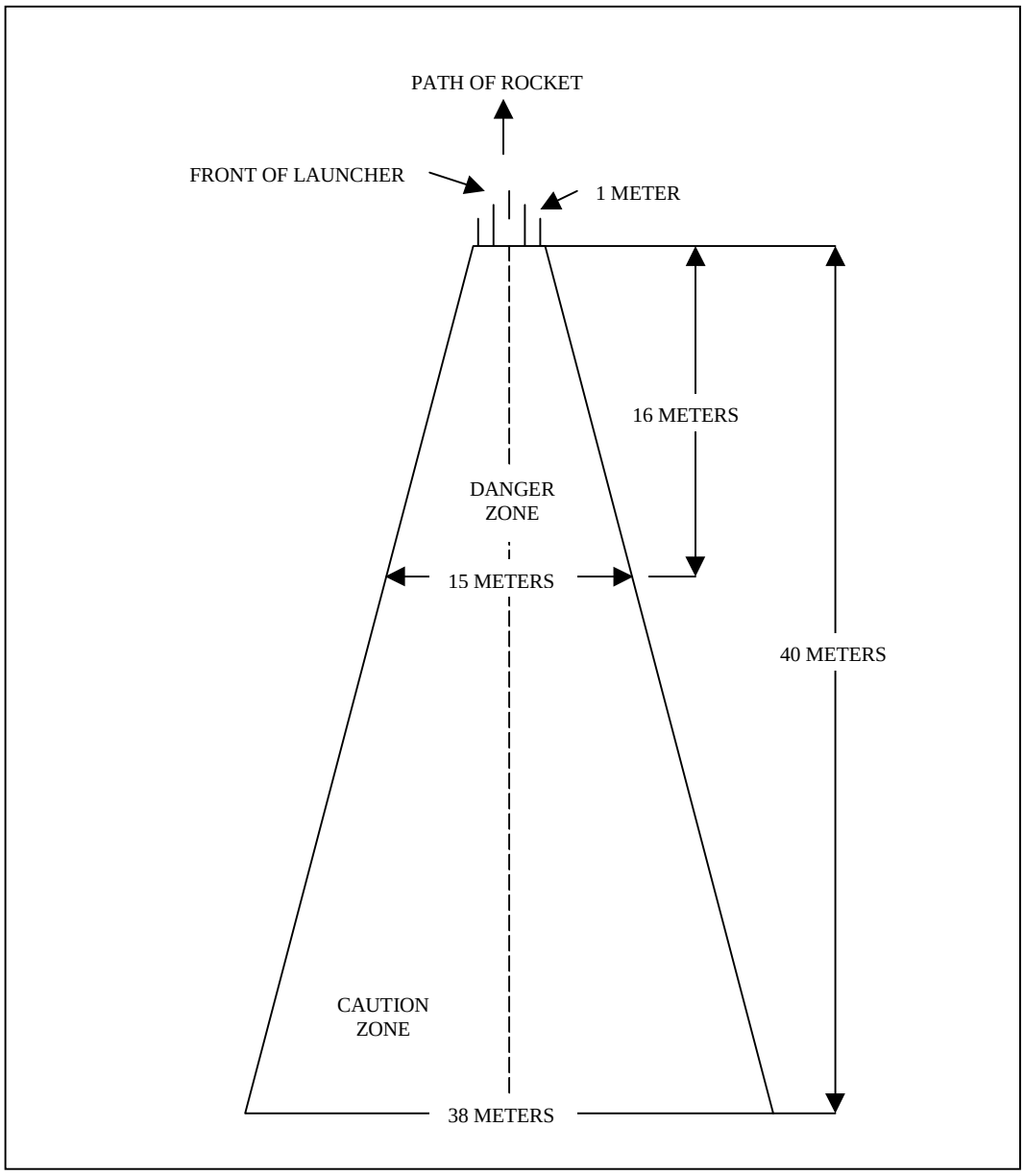


Figure 5-13. Backblast area of an M202 FLASH.

(b) The M202 FLASH is not effective in penetrating typical urban targets. It can penetrate up to 1 inch of plywood at 200 meters and, at close range, it can penetrate some wooden doors. The rocket reliably penetrates window glass. The M202 does not damage brick or cinder block construction. The flame agent splattered against the top, flanks, and rear of light armored vehicles can be effective. The psychological effect of hits by flame rockets on enclosed crewmen is significant.

(c) A round detonating near or on a vehicle's rear deck or engine compartment could set the vehicle on fire. A wheeled vehicle, such as the BTR, could have its tires severely damaged by the M202. Modern threat tanks and BMPs have an NBC protective overpressure system that usually will prevent flame from reaching the vehicle's interior.

(2) ***M34 WP hand grenade.*** The M34 is used to ignite and destroy flammable objects, especially wooden structures. It is also used to create an immediate smoke cloud to conceal movement across a narrow open space such as a street. Its smoke is not toxic but can cause choking in heavy concentrations.

(a) The grenade's explosion, bright flash, smoke, and burning WP particles combine to make the M34 one of the most effective psychological weapons available. The M34 hand grenade throws WP fragments up to 35 meters from the point of detonation. These fragments can attach to clothing or skin and continue burning. Because of its weight, most infantrymen can throw this grenade only 30 to 40 meters.

(b) The soldier must avoid injury from friendly use of the M34. As with the M202, the M34 can ignite if the WP inside is exposed to the air. Bullets and shell fragments have been known to strike and rupture M34 grenades, therefore, grenades must be protected from enemy fire.

(c) The M34 WP grenade is an effective weapon against enemy armored vehicles when used in the close confines of combat in built-up areas. It can be thrown or dropped from upper stories onto enemy vehicles. The M34 can be combined with flammable liquids, detonating cords, blasting caps, and fuze igniters to create the eagle fireball, a field-expedient antiarmor device. (See FM 21-75, Appendix H.)

(d) The M34 is also an excellent screening device. A grenade can be thrown from behind cover into an open street or plaza. When it explodes, the enemy's observation is temporarily obscured. Thus, friendly forces can quickly cross the open area; if the enemy fires, it is unaimed and presents less of a danger. If screening smoke is used to cover a squad's movement across short open areas, it will reduce expected casualties from small-arms fire by about 90 percent.

(e) Leaders should consider using flame weapons at night for the psychological as well as destructive effect on the enemy.

CHAPTER 6

BATTLE DRILL

MOUT BATTLE DRILL 1. CLEAR A ROOM

SITUATION: Operating as part of a larger force, the squad is tasked to participate in clearing a building. The platoon leader directs the squad to clear a room.

NOTE: The following assumes that only the platoon's organic weapons support the Infantry squad. Urban situations may require precise application of firepower. This is especially true of an urban environment where the enemy is mixed with noncombatants. Noncombatants may be found in the room. The presence of civilians can restrict the use of fires and reduce the combat power available to a squad leader. His squad may have to operate with "no fire" areas. Rules of Engagement (ROE) can prohibit the use of certain weapons until a specific hostile action takes place. All soldiers must be aware of the ROE. Leaders must include the precise use of weapons in their planning for precision MOUT missions in urban terrain.

REQUIRED ACTIONS: (Figures 6-1, 6-2, 6-3, and 6-4)

1. The squad leader designates the assault element.

2. Assault element members move as close to the entry point as possible, staying in standing or crouched position but not in a kneeling position.

3. All team members must signal one another that they are prepared before the assault element enters the room. Team members avoid the use of a verbal signal, which may alert the enemy and destroy the element of surprise.

4. A grenade of some type or a distraction device may be thrown into the room prior to entry. If applicable, the grenade should be cooked off before throwing.

a. If stealth is not a factor, the thrower should sound off with "FRAG OUT".

b. If stealth is a factor, only visual signals are given as the grenade is thrown.

CAUTION

If walls and floors are thin, fragments from fragmentation grenades can injure soldiers outside the room. Leaders must determine the effectiveness of this type of grenade compared to possibilities of harm to friendly troops.

DANGER

COOK-OFF TRAINING WITH LIVE FRAGMENTATION HAND GRENADES IS PROHIBITED.

5. On the signal to go or immediately after the grenade or distraction device detonates, the assault element moves through the door quickly and takes up positions inside the room that allow it to completely dominate the room and eliminate the threat. Team members stop movement only after they have cleared the door and reached their designated point of domination. In addition to dominating the room, all team members are responsible for identifying possible loopholes and mouseholes in the ceiling and the floor.

a. The first man enters the room and eliminates the immediate threat. He has the option of going left or right, normally moving along the path of least resistance, and then moving to one of two corners based on the size of the room, the enemy situation, and furniture and obstacles that hinder or channel movement (Figure 6-1).

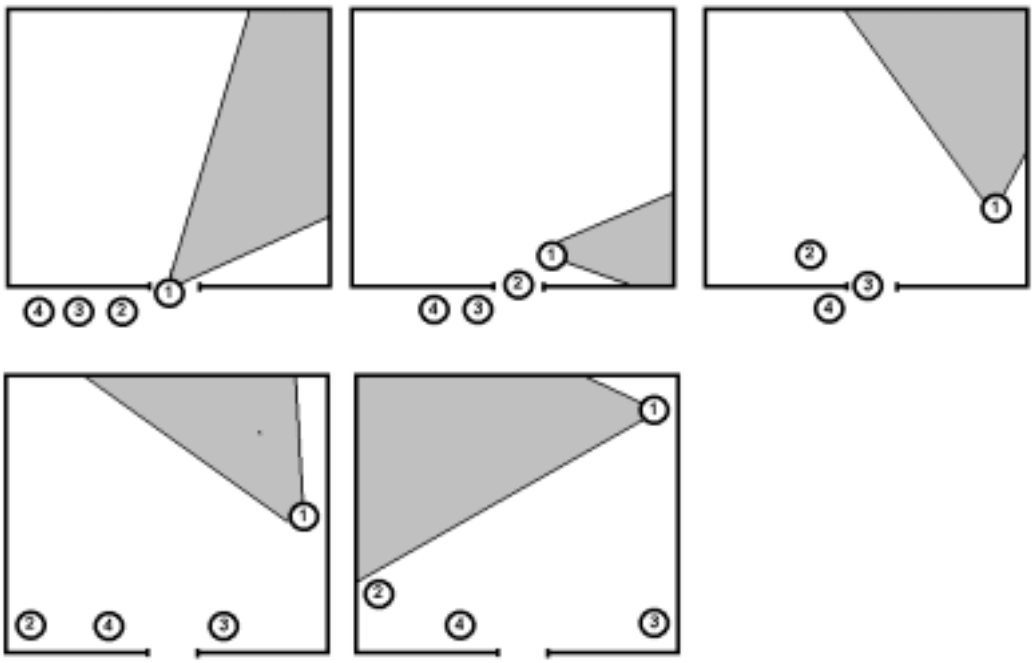


Figure 6-1. First man in a room.

b. The second man moves in the opposite direction, following the wall, staying out of the center (Figure 6-2). The first and second men must clear the breach point, clear the immediate threat area, clear their corner, and move to a dominating position on their

respective sides of the room. Positions of domination should not be located in front of doors and windows.

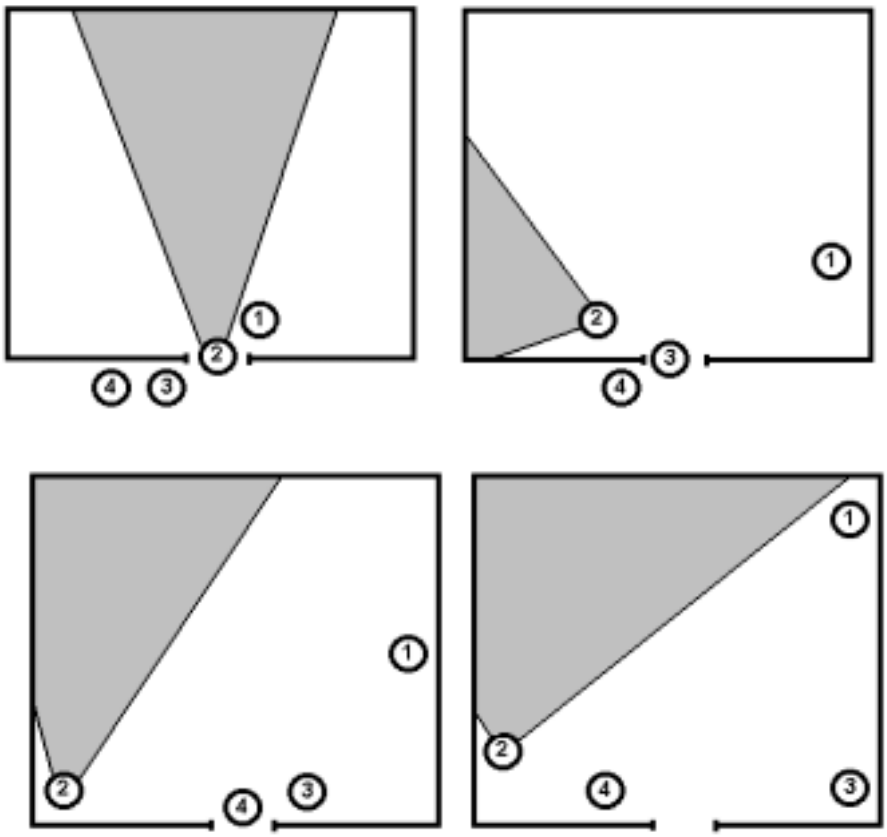


Figure 6-2. Second man in a room.

c. The third man will go opposite of the second man inside the room at least one meter from the door (Figure 6-3).

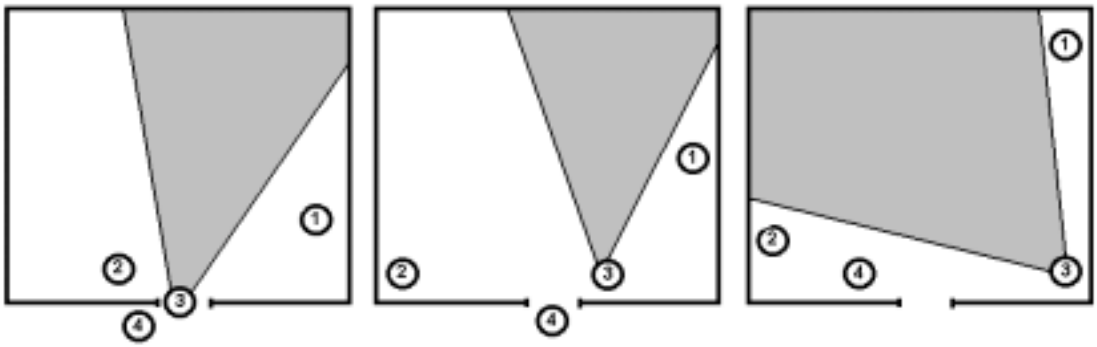


Figure 6-3. Third man in a room.

d. The fourth man will move opposite of the third man (Figure 6-4).

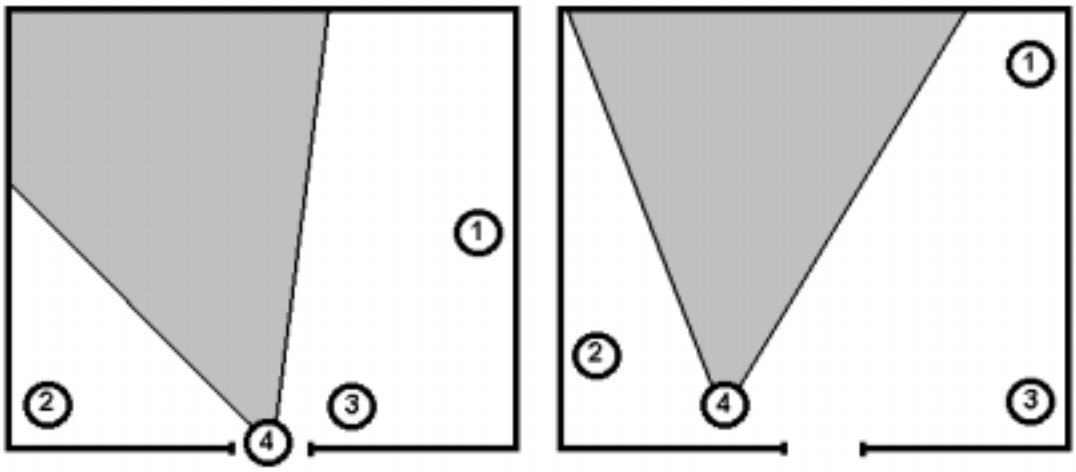


Figure 6-4. Fourth man in a room.

6. All team members stop movement only after they have cleared the door and reached their points of domination.

7. On order, any member of the assault element may move deeper into the room overwatched by the other team members.

DANGER

While clearing rooms, soldiers must be alert for trip wires and booby traps. They must not silhouette themselves through open windows or doors.

8. Once the room is cleared, the leader of the assault element signals to the squad leader that the room has been cleared.

9. The squad leader marks the room (IAW unit SOP). The squad leader determines whether or not his squad can continue to clear through the building.

10. The squad reorganizes as necessary. Leaders redistribute the ammunition.

11. The squad leader reports to the platoon leader that the squad has cleared the room.

NOTE: If available, the platoon/squad will suppress the enemy in buildings with large caliber weapons. Rules of engagement can prohibit the use of certain weapons

until a specifically hostile action takes place. All leaders must be aware of the local ROE.

GLOSSARY

ACTD	Advance Concept Technology Demonstration
AP	antipersonnel
APC	armored personnel carrier
ASAP	as soon as possible
AT	antitank
ATGM	antitank guided missile
BFV	Bradley Fighting Vehicle
BMNT	beginning of morning nautical twilight
BMP	Boyevaya Mashina Pekhoty [literal Russian: combat vehicle, infantry (amphibious armored)]
BTR	Bronetransporter [literal Russian: amphibious armored transporter personnel carrier (series used as APCs)]
CA	Civil Affairs
CATD	Combined Arms & Tactics Directorate
CI	civilian internee
CP	command post
CPA	controlled penetration ammunition
CS	combat support
CSS	combat service support
CW	chemical warfare
DBBL	Dismounted Battlespace Battle Lab
DOT	Directorate of Training
DZ	drop zone
EPW	enemy prisoner of war
FASCAM	family of scatterable mines
FLSC*	flexible linear shaped charge
FM	frequency modulation
FO	forward observer
FPF	final protection fires
FPL	final protective line
FRAGO	fragmentary order
GPS	global positioning system
GS	general support

GSR	ground surveillance radar
HE	high explosive
HEDP	high-explosive, dual-purpose
IAW	in accordance with
ID	identification
IFV	infantry fighting vehicle
IPB	intelligence preparation of the battlefield
IR	infrared
LAW	light antitank weapon
LIC	low-intensity conflict
LOS	line of sight
LZ	landing zone
METT-T	mission, enemy, terrain, troops, and time available
MG	machine gun
MOUT	military operations on urbanized terrain
MP	military police
MSD	minimum safe distance
MSR	main supply route
NBC	nuclear, biological, chemical
NLOS	non-line-of-sight
NOD	night observation devise
NVD	night vision device
NVG	night vision goggles
OP	observation post
OPORD	operation order
PE	probable error
PEWS	platoon early warning system
PSYOPS	psychological operations
PZ	pickup zone
RAAWS	ranger antiarmor weapon system
REM	remote sensor
RLEM*	rifle launched entry munitions
ROE	Rules of Engagement
RPG	rocket-propelled grenade

SITREP	situation report
SMAW	shoulder-launched, multipurpose assault weapon
SOF	special operations forces
SOP	standing operating procedure
SWAT	Special Weapons and Tactics
TO&E	table of organization and equipment
TOW	tube-launched, optically tracked, wire-guided
TPT	target practice with tracer
TRP	target reference point
TTP	tactics, techniques, and procedures
UAV	unmanned aerial vehicle
UCMJ	Uniform Code of Military Justice
UGV	unmanned ground vehicle
VEESS	vehicle engine exhaust smoke system
WP	white phosphorous

*** New acronyms**