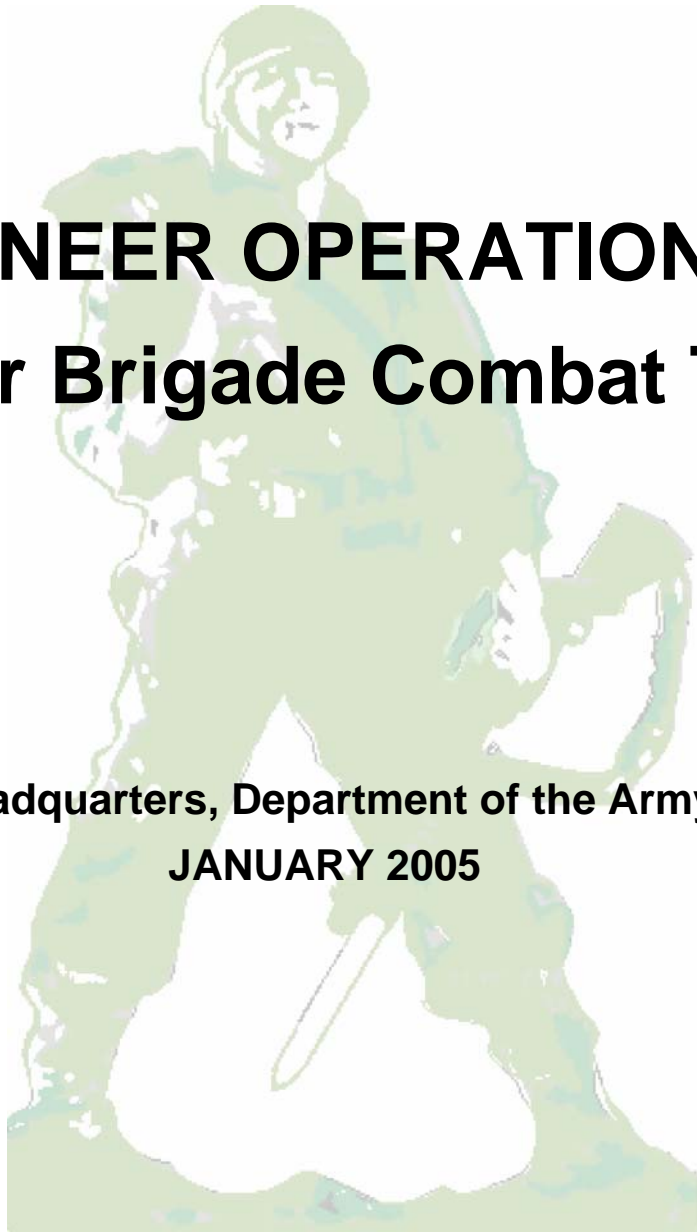


**FM 3-34.221**

**ENGINEER OPERATIONS—  
Stryker Brigade Combat Team**

**Headquarters, Department of the Army  
JANUARY 2005**



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# Engineer Operations— Stryker Brigade Combat Team

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## Preface

*Field Manual (FM) 3-34.221* supports engineer operations within and in support of the Stryker brigade combat team (SBCT). It is a guide for commanders and staffs within the brigade, the organic engineer company, and the engineer elements that augment or support the SBCT. Engineers perform critical battlefield functions and operate as key members of the combined arms team. As with all arms, engineers are integrated into the scheme of maneuver and massed at critical points during battles and operations.

This manual is built directly on the concepts of *FMs 3-0, 3-07, 3-21.31, 3-34, and 3-90*. Given the magnitude of doctrinal changes in recent years, familiarity with these documents is necessary. *FM 3-90* primarily provides a framework for integrating combat engineering functions, but it is also applicable for many of the associated geospatial and general engineering functions as they apply to tactics. *FM 3-34.221* should be read in conjunction with—

- *FM 3-0.*
- *FM 3-06.11.*
- *FM 3-07.*
- *FM 3-21.21.*
- *FM 3-21.31.*
- *FM 3-34.*
- *FM 3-34.2.*
- *FM 3-34.230.*
- *FM 3-90.*
- *FM 3-100.4.*
- *FM 5-7-30.*
- *FM 5-71-2.*
- *FM 5-71-3.*
- *FM 5-103.*
- *FM 5-104.*
- *FM 5-170.*
- *FM 6-0.*
- *FM 7-0.*
- *FM 20-32.*
- *FM 90-7.*
- *FM 90-13.*
- *FM 101-5.*
- *Joint Publication (JP) 2-03.*
- *JP 3-34.*

In addition to being a guide for engineer commanders and staffs, *FM 3-34.221* also helps other commanders and staffs within the SBCT understand the engineer mission. It describes how to employ and integrate engineers during operations and furnishes the authoritative foundation for SBCT engineer doctrine and terminology, force design, materiel acquisition, professional education, and individual and unit training.

This manual builds on the collective knowledge and wisdom gained through recent operations, numerous exercises, and the deliberate process of informed reasoning throughout the Army. It is rooted in time-tested principles and fundamentals, while embracing new technology and acknowledging diverse threats to national security.

A metric conversion chart is provided in *Appendix A*.

The proponent for this publication is HQ TRADOC. Send comments and recommended changes on *Department of the Army (DA) Form 2028 (Recommended Changes to Publications and Blank Forms)* directly to Commandant, US Army Engineer School, ATTN: ATSE-DOT-DD, Directorate of Training, 320 MANSCEN Loop, Suite 336, Fort Leonard Wood, MO 64573-8929.

Unless this publication states otherwise, masculine nouns and pronouns do not refer exclusively to men.

## Chapter 1

# Operational Environment and Engineer Company Operations

The SBCT is designed to optimize its organizational effectiveness by balancing the traditional domains of lethality, mobility, and survivability with responsiveness, deployability, sustainability, and a reduced in-theater footprint. The SBCT is nontraditional with respect to design, the deployment process, and the manner of employment. Its two core qualities are high mobility (strategic, operational, and tactical) and the ability to achieve decisive action through dismounted infantry assault. The major fighting components are its motorized infantry battalions and a unique organic reconnaissance, surveillance, and target acquisition (RSTA) cavalry squadron to facilitate situational understanding (SU) and enhance the common operational picture (COP). Assured mobility is critical to the success of the SBCT and for optimizing its design and mission profile.

## STRYKER BRIGADE COMBAT TEAM

1-1. The SBCT is a full-spectrum combat force. It has utility in all operational environments against all projected future threats. However, it is designed and optimized primarily for smaller-scale contingency (SSC) operations in complex and urban terrain, confronting low-end and midrange threats that may employ conventional and asymmetric capabilities. Likely operational environments include urban and complex terrain, a weak transportation and logistics infrastructure, an uncertain political situation, coalition involvement, and the presence of an asymmetric threat that includes mostly mid- but some high-end technologies. The SBCT deploys very rapidly, executes entry operations, and conducts effective combat operations immediately on arrival to prevent, contain, stabilize, or resolve a conflict through shaping and decisive operations. The SBCT participates in major theater wars (MTWs) with augmentation. This may be as a subordinate maneuver component within a division or corps that performs in a variety of possible roles. The brigade also participates in peacetime military engagements (PMEs) as an initial-entry force and as a guarantor to provide security for stability forces through its extensive combat capabilities.

## OPERATIONAL CONCEPT

1-2. The integration of information technology is launching the Army into the 21st century. Operations Desert Storm, Just Cause, and Joint Endeavor opened a visionary window on the capabilities that information can provide. The future battlefield, with integrated technology, has a larger battlespace and moves at a higher tempo. It has increased lethality through precision



munitions, the massing of effects versus the massing of forces, and most importantly, the increased ability to visualize the entire battlespace. Army Battle Command System (ABCS) technology and command and control (C2) systems integrate functional elements to plan, prepare, and execute a full range of operations in nearly any environment. This integration ultimately provides a secure, vigorous, and survivable communications network for voice, data, and video. Information operations give leaders the relevant friendly information and enemy intelligence, including weather and terrain data. Relevant information and intelligence help build the COP for the commander and the brigade combat team, providing a basis for battlefield visualization and situational awareness (SA).

## ASSURED MOBILITY

1-3. Assured mobility encompasses those actions that enable a force commander to deploy, move, and maneuver where and when he desires, without interruption or delay, to achieve the mission. The imperatives and fundamentals of assured mobility allow friendly forces to exploit superior SU and, therefore, gain unsurpassed freedom of movement. Put simply, this framework describes the processes that enable the commander to *see first, understand first, act first, and finish (win) decisively*.

### Imperatives

1-4. Assured mobility supports the maneuver commander's use of the elements of combat power to achieve decisive, shaping, and sustaining operations across the full spectrum of operations and conflict. The framework of assured mobility entails four proactive imperatives that ensure mobility only if integrated into the military decision-making process (MDMP).

1-5. **Develop Mobility Input to the Common Operational Picture.** This imperative is collecting and integrating geospatial, cultural, and enemy information (aided by automated mobility planning tools) to establish the mobility COP for the entire area of operations (AO). This information allows quick development of the initial and follow-on, real-time modified combined-obstacle overlay (MCOO) that enables the maneuver commander to select the focused operating areas within the AO that best provide positions of advantage. The operating areas are smaller areas designated within the AO that allow the commander to focus collection assets and efforts. The MCOO is defined by the desired end state and is updated with new information to reflect real-time mobility aspects. This imperative is absolutely critical and must be linked to intelligence, surveillance, and reconnaissance (ISR) operations.

1-6. Knowing existing obstacles and monitoring existing traffic patterns are two things that allow us to see the battlefield in near real time. Where obstacles **are** is just as important as where they **are not**. This information allows the maneuver commander to determine where he may maneuver, what resources will be required to get there, and how the enemy may attempt to influence the maneuver plan. The mobility COP enables the maneuver commander to identify the operating areas in the AO and the associated mobility challenges. Linked with ISR operations, this imperative continuously