

ENGINEER DOCTRINE UPDATE

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This article provides an update to the Engineer Regiment on doctrinal publications. Significant content changes due to lessons learned from recent operations, the transition to a modular force, and changes in joint and Army capstone and keystone manuals are being worked. The old 5-series manuals will be modified to a new 3-34.xyz system that complements the Army and joint hierarchies.

Value of Doctrine

Doctrine touches all aspects of the Army. It links theory, history, experimentation, and practice. It provides an authoritative statement about how military forces do business, insights and wisdom gained from collective experience with warfare, and a common language to describe it. It is a guide to action, not “hard-and-fast” rules. Doctrine provides the intellectual tools leaders use to solve military problems quickly and effectively. By establishing common ways of accomplishing military tasks, it helps standardize operations and enhance readiness. Doctrine facilitates clear thinking and assists a commander in determining the proper course of action during the decision-making process. It facilitates communication among Soldiers and contributes to a shared professional culture. It forms the basis for curricula in the Army education system.

Effective doctrine for all levels explains how Soldiers and leaders expect to fight and operate. It is based on experience—an estimate of what lies ahead. Doctrine provides fundamental principles by which military forces and their elements guide their actions in support of national objectives. It is authoritative, but requires judgment in application.

Principles, Tactics, Techniques, and Procedures

Doctrine includes fundamental principles, tactics, techniques, and procedures. *Principles* form the basis that guide the actions of Army forces in support of national objectives. They provide the foundation for initiatives designed to help leaders be adaptive, creative problem solvers. *Tactics* address the employment of units in combat. The actual application of tactics is highly circumstantial; it is both art and science. Tactics vary constantly with the situation. *Techniques*

are the general and detailed methods used by troops and commanders to perform assigned missions and functions, specifically the methods of using equipment and personnel. *Procedures* are standard and detailed courses of action that describe how to perform a task. Techniques and procedures are the lowest level of doctrine. They are specific to particular types of units based on organization, equipment, and environment.

Capstone Field Manuals

The Army has two capstone field manuals (FMs)—FM 1, *The Army*, and FM 3-0, *Operations*—that form the apex of the Army’s doctrine hierarchy. Together, they establish the framework for a range of supporting doctrine. Army keystone doctrine is organized around foundations established in FM 3-0. Supporting manuals provide additional detail for keystone manuals.

FM 3-0 establishes the Army’s fundamental principles for applying land power as part of an interdependent joint force. It provides a framework for action and decision making at all levels. It is not meant to be, and must not be, a substitute for thought. The aim is to establish guidelines for leaders to direct operations while allowing enough freedom for bold, creative initiative in any situation.

Engineer Doctrine

The Engineer Regiment has 59 field manuals in its library (the second largest number of any proponent organization in the Army). Of these, 4 are current; 35 require assessment for relevancy, accuracy, and content; and the remaining 20 are under revision or require revision. Our keystone manual that supports the Army’s hierarchy is FM 3-34, *Engineer Operations*. The remaining 58 engineer field manuals are subordinate to FM 3-34.

As the Army embraces more technology in its units, there must be ways to make rapid changes in doctrine that will accommodate changes in hardware, software, and procedures. The process of developing Army doctrine is a decentralized operation that involves the collective and cooperative effort of a large number of proponent schools and centers and targeted

subject matter experts (SMEs). Our objective is to achieve total integration of engineer doctrine with Army proponent schools and centers, as well as with multiservice, joint, and allied doctrine. We strive to ensure that our doctrine has credibility and legitimacy because it is developed with the “user” in the “field Army” in mind. This is achieved through extensive staffing, targeted SMEs, Army schools and centers, and joint partners.

Key Developmental Issues

For doctrine to be effective, it must be consistent and applicable at all levels and in all environments. Engineer doctrinal revisions address and incorporate all applicable new or revised joint and Army capstone and keystone publications, the current operational environment, new technology, new materiel, new organizations, lessons learned, and validated concepts. There have been many emerging and key developmental issues to address in engineer doctrine. Following are some primary ones of immediate concern:

- Defining the Future Engineer Force (FEF) capabilities and organizations. Augmentation at brigade combat team level for engineer support (engineer battalion headquarters, mobility operations) and maneuver support is needed.
- Updating existing improvised explosive device (IED) doctrine with rapidly changing tactics, techniques, and procedures, and incorporating the right lessons learned, new materiel, and training.
- Transitioning the Army away from the battlefield operating systems to the more joint-aligned warfighting functions (WFF). Mobility and countermobility universal tasks are proposed with movement and maneuver WFF. Survivability universal tasks are aligned with the protection WFF. General engineering is a subtask of the sustainment and logistics WFF. Geospatial engineering is aligned with the intelligence WFF.
- Defining maneuver support and integrating it in Army keystone and capstone doctrine.
- Defining and embedding infrastructure reconnaissance throughout engineer and Army doctrine.
- Defining base camp standards and coming to an agreement between all services on one standard.
- Reintegrating the five functional areas (conduct combined arms breaching, conduct clearing, conduct gap crossing, construct, and maintain combat roads and trails) of mobility operations back into doctrine.
- Defining the types of gap crossings (deliberate, hasty, and covert) and establishing the linkage between gap crossing and mobility operations.
- Revising our approach to engineer reconnaissance to a more combined arms approach with better resolution on the differences between the tactical and technical reconnaissance, discussing engineer reconnaissance

teams, explaining and highlighting reachback and other technical augmentation, reintroducing a discussion on tunnel reconnaissance, and adding infrastructure and environmental reconnaissance (assessment and survey) into publications.

- Redefining essential mobility and survivability tasks to essential maneuver support tasks to synchronize and integrate more than just mobility and survivability operations.
- Defining and detailing clearing operations (route and area) in doctrine.
- Defining and detailing search operations in doctrine.
- Assessing and updating current information on urban explosive breaching and bringing our procedures in line with the United States Marine Corps.
- Redefining and establishing a consistent obstacle numbering system. If done correctly, the relationship between the North Atlantic Treaty Organization (NATO); American, British, Canadian, and Australian (ABCA); and U. S. standards can be complementary.

Numbering and Hierarchy

Figure 1 shows the basic hierarchy of engineer manuals with the revised numbering system. FM 3-34 and its eight subordinate manuals directly relate to and support engineer battlespace functions (combat engineering [mobility, countermobility, and survivability], general engineering, and geospatial engineering), coupled with the organizational and supporting reference manuals.

In August 1997, the United States Army Training and Doctrine Command (TRADOC) initiated a program to revise the Army doctrine hierarchy to link it by function and number to the joint publication system. This resulted in a tiered systematic approach that delineates between Army capstone and keystone doctrine and aligns those manuals with their corresponding joint manuals. The remaining manuals consist of proponent and branch-specific doctrine and publications. While the revised numbering system was approved and is in place at some levels of the Army, implementation has been a slow process. The renumbering of older manuals will occur during the normal revision cycle.

Figure 2, page 32, is an example of the originally planned transition to the new numbering system—a detailed resolution for each manual. However, due to the dynamics of the ever-changing environment, it was determined that a simplified version would better serve the Regiment. As manuals are updated, the FM 3-34.xyz numbering system will be used for the majority of the manuals, not the example shown in Figure 2. The 100- to 300-level series manuals will be linked to combat engineering functions, the 400- to 500-level series manuals will be linked to general engineering functions, and the 600-level series manuals will be linked to geospatial engineering functions. The organizational manuals will be

Army Engineer Publications Hierarchy

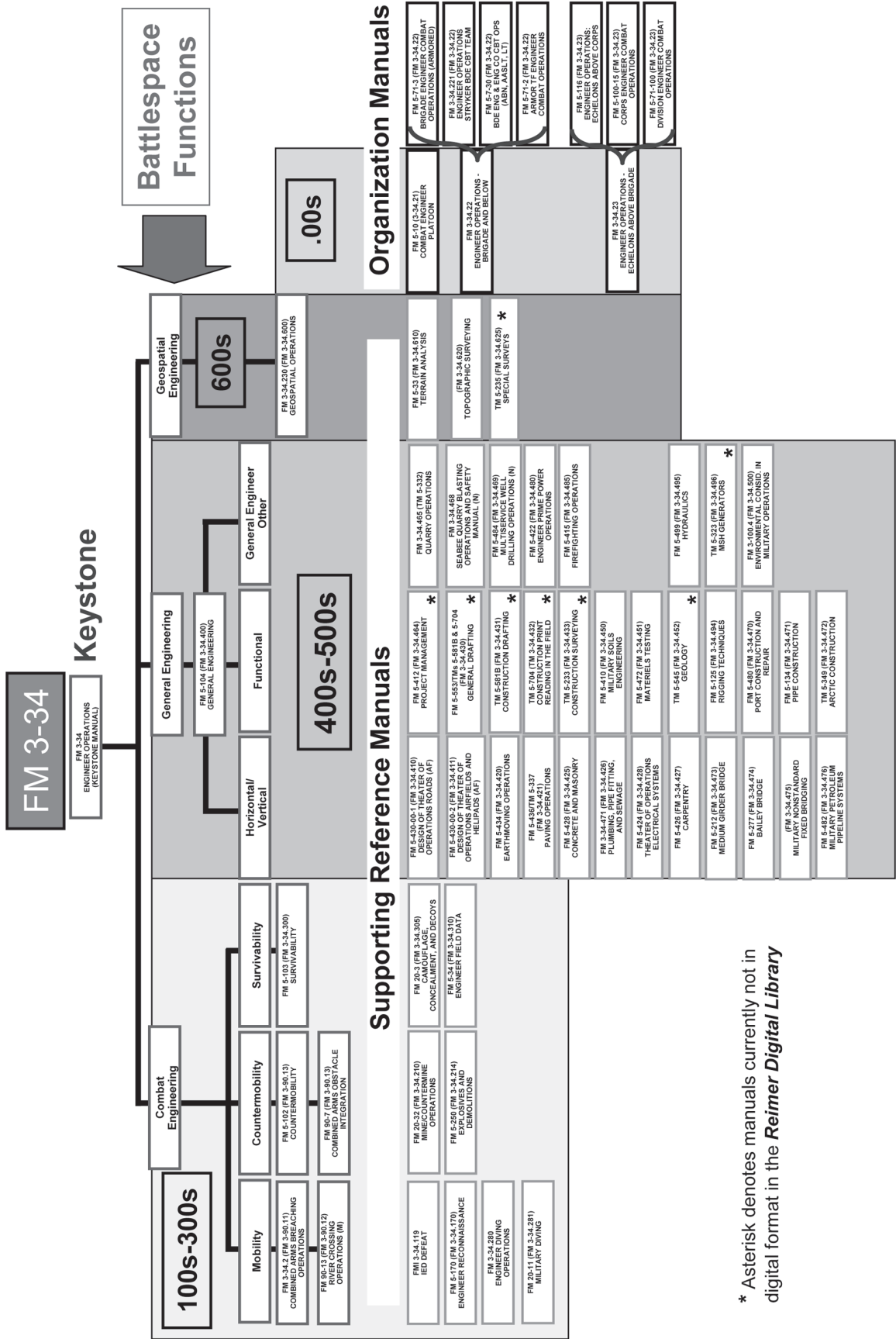


Figure 1

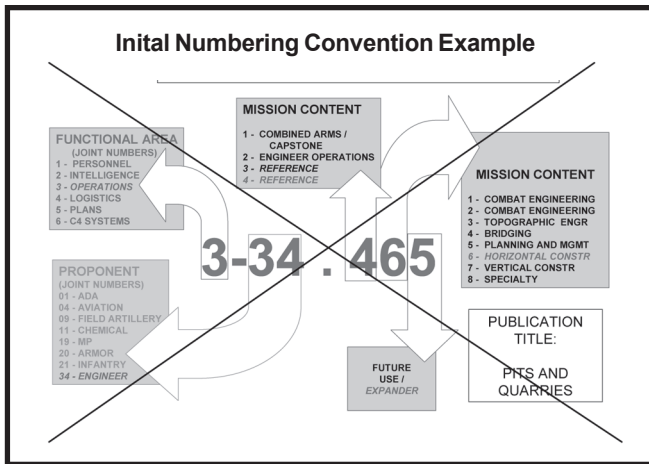


Figure 2

renumbered to 3-34.xy, and many of our key manuals that directly relate to combined arms will be renumbered to FM 3-90.xy (such as FM 3-90.11, *Combined Arms Mobility Operations*; FM 3-90.12, *Combined Arms Gap Crossing Operations*; and FM 3-90.13, *Combined Arms Obstacle Integration*).

Recently published manuals using this new numbering system are—

- Field Manual Interim (FMI) 3-34.119, *IED Defeat*, September 2005.
- FM 3-34.221, *Engineer Operations - Stryker Brigade Combat Team*, January 2005.

Ongoing and Near-Term Doctrine Actions

Doctrinally, as you can see, the Regiment and the Army as a whole have a lot on their plate. Engineer manuals currently being updated are listed in the following paragraphs, along with the ongoing integration efforts with Army and joint publications (JPs).

Currently 14 publications are being revised in support of the Global War on Terrorism and the modular transformation. Primary changes relate to the key developmental issues already mentioned. In Figure 3, those 14 publications are highlighted in the boxes outlined in red. A full-color copy of Figure 3 is posted to the United States Army Engineer School, Doctrine Development Division, Web site at <http://www.wood.army.mil/DDD>.

Engineer Publications

- FM 3-90.11 (currently FM 3-34.2), *Combined Arms Mobility Operations*.

Status: Final draft.

Revision highlights: FEF modularity, mobility (breaching, clearing, gap crossing, combat roads and trails, forward aviation combat engineering [FACE]), IEDs, WFF; maneuver support, urban breaching, and essential maneuver support tasks.

- FM 3-90.12 (currently FM 90-13), *Combined Arms Gap Crossing Operations*.

Status: Adjudicating the comments from the initial draft staffing to the field.

Revision highlights: FEF modularity, reconnaissance, gap crossing definitions, WFF, and maneuver support.

- FM 3-90.13 (currently FM 90-7), *Combined Arms Obstacle Integration*.

Status: Final draft.

Revision highlights: Obstacle numbering, FEF modularity, WFF, and maneuver support.

- FM 3-34, *Engineer Operations*.

Status: Initiating process to revise.

Revision highlights: FEF modularity, WFF, maneuver support, alignment to capstone doctrine, assured mobility, and essential maneuver support tasks.

- FM 3-34.22 (currently FM 3-34.221, FM 5-71-2, FM 5-71-3, and FM 5-7-30), *Engineer Operations - Brigade Combat Team and Below*.

Status: Writing the initial draft.

Revision highlights: FEF modularity, WFF, essential maneuver support tasks, and assured mobility.

- FM 3-34.300 (currently FM 5-103), *Survivability*.

Status: Final draft.

Revision highlights: Protection, hardening, WFF, and essential maneuver support tasks.

- FM 3-34.170 (currently FM 5-170), *Engineer Reconnaissance*.

Status: Writing the initial draft.

Revision highlights: Infrastructure reconnaissance (assessment and survey), environmental reconnaissance (assessment and survey), and engineer reconnaissance teams and reachback.

- FM 3-34.210 (currently FM 20-32), *Explosive Hazards Operations*.

Status: Editing the final approved draft.

Revision highlights: Explosive hazards, explosive ordnance clearance agents, search operations, IED operations, clearance operations, landmine policy, and mine dogs.

- FM 3-34.400 (currently FM 5-104), *General Engineering*.

Status: Final draft.

Revision highlights: Infrastructure reconnaissance, FEF modularity, homeland support, reachback, and WFF.

- FM 3-34.214 (currently FM 5-250), *Explosives and Demolitions*.

Status: All final draft comments are adjudicated; preparing the final approved draft.

Revision highlights: Urban breaching, neutralization terminology, and modernized demolition initiators.

- FM 3-34.480 (TM 5-422), *Engineer Prime Power Operations*.

Status: All final draft comments are adjudicated; preparing the final approved draft.

Revision highlights: Equipment and capabilities.

Related Army Publications

- FM 3-0, *Operations*.

Status: Writing initial draft.

- FMI 5-0.1, *The Operations Process*.

Status: Completed February 2006 and posted to the Army Knowledge Online (AKO) Web site.

- FMI 3-91, *Division Operations*.

Status: Doctrine review approval group (DRAG) version currently being staffed with suspense of 6 March 2006; action officer DRAG adjudication conference, 15-17 March 2006.

Joint Publications

- JP 3-0, *Joint Operations*.

Status: Final coordination of draft adjudication.

- JP 3-34, *Joint Doctrine for Engineer Operations*.

Status: Writing revision second draft.

- JP 3-15, *Joint Doctrine for Barriers, Obstacles, and Mine Warfare*.

Status: Writing Army engineer input to revision first draft.

- JP 2-03, *Geospatial Intelligence Support to Joint Operations*.

Status: Revision second draft in adjudication.

- *Joint Forward Operations Base Force Protection Handbook*.


Status: Final draft edition for the quick-reaction test; starting process to integrate into an Air, Land, Sea Application (ALSA) multiservice tactics, techniques, and procedures publication through the Joint Allied Doctrine Division analysis and approval.

Regiment Involvement

As previously mentioned, keeping a diverse and large inventory of manuals current requires effort from across the Regiment to ensure that the engineer library is maintained, relevant, and pertinent. What good is it to have a manual on *Arctic Construction* when it is not used, current (it was written in 1962), or relevant? Surely there have been numerous advances in arctic construction in the last 40 years.

Maintaining our doctrinal library is critical to the Regiment because it integrates engineer doctrine, organization, training, materiel, leadership and education, personnel, and facilities (DOTMLPF). It is our training base for educating Soldiers and officers, as well as a ready reference while deployed and performing missions that might not be routine. Numerous efforts are ongoing throughout the Regiment. The Engineer School challenges you to participate in the doctrine development process to produce relevant and current doctrine for our Regiment. Drafts are staffed through the AKO portal (sergeant first class and above and major and above). If you would like to become involved in the process, or if you have unique expertise that would make you the perfect SME candidate, contact the Engineer School Doctrine Development Division at <<http://www.wood.army.mil/DDD>> or call commercial, 573-563-7332/8161; or DSN, 676-7332/8161.

Conclusion

While many initiatives are in the works to change the way we write, produce, and access Army doctrine, there is still a need to manage, review, and update existing manuals to ensure that they are relevant and valuable to our Regiment. We must continue to integrate current engineer changes into existing and new manuals. Participation in the doctrine development process—by targeting SMEs and working groups drafting these documents with key engineer and maneuver-supporting perspective—is essential. With your help, the process will meet the doctrinal needs of the Regiment and the Future Force by maintaining a relevant, current, consistent, and integrated library. 

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