Lay Hold! Heave!

Building Speed: Excitement and Satisfaction in Pushing the BGE Flywheel

Compiled by Colonel Jerry C. Meyer from information provided by past and present members of the Building Great Engineers (BGE) Council of Colonels: Colonel William H. Haight, Colonel Timothy O'Rourke, Colonel James Wong, Colonel Janice Dombi, Mr. Steven H. Tupper, Colonel Robert A. Tipton, Colonel Jose Cepeda, Colonel Andrew Phillips, and Dr. Robert Wolff

". . . why does the Flywheel Effect work? Because more than anything else, real people . . . want to be part of a winning team. They want to contribute to producing real results. They want to feel the excitement and the satisfaction of being part of something that just flat-out works. When people begin to feel the magic of momentum—when they begin to see tangible results and can feel the flywheel start to build speed—that's when they line up, throw their shoulders to the wheel, and push."—Jim C. Collins[1]

Background

Seeking to reverse quantifiable degradation to engineer leader technical and tactical competency, the Fort Leonard Wood portion of ENFORCE 2008 built on the foundation of six Engineer Leader Technical Competency (ELTC) work groups:

- Future Roles, Missions, Delivery Methods
- Accessions
- Training and Education
- Employment
- Retention
- Strategic Communications

Less than 60 days later, the result was a Chief of Engineers-approved *Building Great Engineers* Campaign Plan with nearly 40 initiatives. For those with Army Knowledge Online (AKO) access, that plan can be read on the Engineer School Knowledge Network (ESKN).

Seven months later (as of this 1 March writing), what has become of the efforts of those who have remained engaged and put shoulder to the flywheel? Too often "good ideas" languish and die from lack of follow-up and effort. Did we really begin doing what we said we were going to do? Is the flywheel turning? The intent of this article is to inform the Engineer Regiment on the current status of many BGE actions initiated by the plan and the way ahead in increasing engineer leader technical and tactical competency for full spectrum operations in an era of persistent conflict.

"Don't wait until everything is just right. It will never be perfect. There will always be challenges, obstacles and less than perfect conditions. So what. Get started now. With each step you take, you will grow stronger and stronger, more and more skilled, more and more self-confident, and more and more successful."—Mark Victor Hansen

First, a salute to the leaders who provided great value and now have moved on to other duties! These include Major General Gregg F. Martin, Colonel William H. Haight, Colonel Everett McDaniel, and Colonel James Wong. The power of these leaders' mighty shoulders overcame the inertia of rest on our great wheel!

Next, there are signature accomplishments on each spoke. For the ***Futures*** work group, the force structure in corps and division staffs is being addressed to improve engineer expertise, and we now see the return of military personnel to public works in the foreseeable future. ***Accessions*** has stirred up a significant review of how the Army runs the business of bringing in new lieutenants and leveraging their academic backgrounds. ***Training and Education*** has pushed a suite of teaching and curriculum improvements inside the United States Army Engineer School. ***Employment*** has redrafted the description of an engineer's career in Department of the Army (DA) Pamphlet (Pam) 600-3, *Commissioned Officer Professional Development and Career Management,* thus setting a modern paradigm for a new generation of sappers, builders, and geospatial engineers. ***Retention*** is on the verge of reimbursement of Professional Engineer (PE) exams and preparation fees. ***Strategic Communications*** has developed DA-level marketing materials that are making a difference.

Finally, you are invited to review the following detailed summaries and to attend the work sessions at ENFORCE 2009 that will push this critical work forward.

Future Roles, Missions, Delivery Methods

Work group leadership has been passed to Colonel Timothy O'Rourke and Lieutenant Colonel Vernie Reichling, Office of the Chief of Engineers–Pentagon (OCE–P). The work group founder, Colonel William H. Haight, has moved to the Joint Staff and still remains engaged.

Progress

Engineer Staff Structure in the Brigade Combat Team, Division, Corps, and Army Service Component Command. To date, the Vice Chief of Staff, Army (VCSA) has approved the force structure for the corps and division staffs; there were no significant changes for engineers. The Army is conducting a holistic review of the brigade combat team (BCT) structures. Currently, one 215D/W2 is an addition, and there is a reduction of one 21B/03 in the heavy brigade combat team (HBCT)/infantry brigade combat team (IBCT).

Gaining Support in the Joint Operational Engineer Board for Capacity Development. The new capstone concepts for joint operations, the joint operational environment, and the joint operational concepts include capacity development. The Joint Engineer Capabilities-Based Assessment will address the needs of capacity development across the engineer components of the Services.

Coordination With Other Centers/Branches to Better Synchronize Shared Missions With the Intent to Eliminate Redundancy/Increase Synergy. Efforts have largely centered on stability operations. The Base Camp Integrative Capability Development Team continues to move toward a capabilities-based assessment, and recently the Assistant Chief of Staff for Installation Management (ACSIM) presented a concept to the VCSA on expeditionary base camps; however, it falls short of addressing the strategic issue of defining policy for expeditionary basing. Additionally, we are engaging with the United States Army Civil Affairs and Psychological Operations Command on developing doctrinal concepts for engineer support to their operations with a goal of formalizing this relationship for the Regiment.

Development of a Force Design Update for a Strategic-Level Engineer Brigade. This is on hold due to the Army being overstructured. It is unlikely that this structure will be addressed until after the release of the new administration's *National Defense Strategy*. The Engineer School is determining the feasibility of this requirement.

Return of the Director of Public Works (DPW). The Installation Management Command (IMCOM) initiative and support for this is pending approval in Total Army Analysis (TAA) for FY2010-2015, but it is an unresourced requirement. These positions will have to be readdressed in TAA for FY2012-2017. Additionally, the engineer chapter in DA Pam 600-3 was submitted reflecting the BGE concepts and career paths.

Way Ahead

The United States Army Maneuver Support Center (MANSCEN) continues to provide input to the BCT holistic review. Members of the Futures work group will continue to define capacity development as a task in the Joint Capabilities-Based Analysis and Engineer Brigade Headquarters DOTMLPF Study. We will continue to engage the United States Special Operations Command on civil affairs doctrine and engineer support. The Engineer School will work on determining feasibility of developing a Force Design Update for the strategic engineer brigade. We will continue to readdress resourcing DPW requirements in TAA 12-17, per the above update.

"You don't make progress by standing on the sidelines, whimpering and complaining. You make progress by implementing ideas."— Shirley Hufsteddler

Accessions

Colonel Janice Dombi, who recently assumed command of the United States Army Corps of Engineers (USACE) South Pacific Division, heads this work group, which was previously chaired by Colonel Everett McDaniel and Colonel James Wong.

Progress

Access More Degreed Engineers. Results from attempting to access more degreed engineers into the branch are in. Despite a concerted effort at Warrior Forge, Reserve Officer Training Corps (ROTC) branch selection resulted in only

29 percent of officers with engineering degrees being accessed into the Engineer Branch. This is down from 35 percent degreed engineers with the class of 2008, in which little effort was expended to recruit degreed engineers into the branch. Twenty-nine cadets with engineering majors had engineer as their first branch preference, yet did not receive the Engineer Branch. Popularity of the branch went from 7th to 5th, mostly on the 50 percent rise of nonengineers who wanted the branch as their first choice. Among degreed engineers, first choice selection rose by about 10 percent. Had it been specified by Army regulation (AR), the branch could have had 30 to 40 percent more accessed officers with engineering degrees. One-third of those who branched engineer had a degree in political science, criminal justice, history, international relations, or psychology. As a result of these findings, United States Army Cadet Command is now willing to explore branching degreed engineers to lessen the effect of the order of merit listing in the process (not only for engineer, but also other degrees/branches).

For the combined classes of 2009 that were accessed from the United States Military Academy (USMA) and ROTC, 41 percent had engineering degrees (USMA had about 58 percent degreed engineers in the class of 2009, while having well over 60 percent from the class of 2008). If all degreed engineers who selected the Engineer Branch as first choice had been allowed to branch engineers, almost 53 percent of the total USMA and ROTC class would have had engineering degrees.

Officer Candidate School (OCS) classes with an engineer captain leader appear to have higher selection rates for the branch. In 2009, 50 percent of engineer degreed Soldiers selected the Engineer Branch.

Professors of Military Science at Engineer-Centric ROTC Schools. The United States Accessions Command held a summit to talk to Professors of Military Science (PMSs) at engineer-centric ROTC schools to promote engineering. There appears to be a correlation between the branch of the overseeing PMS at the college and branches chosen by the ROTC cadets ("be like me" syndrome). Colonel Dombi has requested feedback from this summit.

Way Ahead

Changing AR 600-3, *The Army Personnel Proponent System,* will have significant impact on determining the number of engineer-degreed cadets branching engineer. Colonel Dombi will lead a breakout group during ENFORCE on broadening an "adopt an engineer" program.

"The great thing in the world is not so much where we stand, as in what direction we are moving."— Oliver Wendell Holmes

Training and Education

Colonel Jerry Meyer, Engineer School Director of Training and Leader Development, and Mr. Steven Tupper, Missouri University of Science and Technology (Missouri S&T), continue to head this work group.

Progress

The Training and Education work group has made solid progress, albeit mostly internal to the Engineer School, for changing courses and improving instruction.

Improving Engineer School Instructors. In consonance with improving Engineer School instructors, the School has implemented a mandatory interview process in addition to the formalized instructor criteria provided to Human Resources Command (HRC) several months ago. Approximately eight Engineer School instructors are participating in the USMA Master Teacher Certification Program, after a visit by Dr. Mark Evans from West Point's Center for Teaching Excellence. Instructors are already halfway through their first year of the program, learning to be better in their primary mission. Several instructors also completed a speed-reading course for college credit via the University of Central Missouri.

Maximizing Learning Effectiveness Within the Existing Training Infrastructure. The Engineer Basic Officer Leader Course (BOLC) has been aligned with FM 3.0, *Operations*. In response to overseas unit requests, more than 300 officers, warrant officers, and noncommissioned officers (NCOs) have received 20 hours of contracting officer's representative (COR) training via Defense Acquisition University online training. Environmental officer certification is now being requested as course growth for BOLC, Engineer Captains Career Course (ECCC), and 210A Warrant Officer Course. The Society of American Military Engineers (SAME) and the University of North Dakota are in the process of signing an agreement giving Soldiers an opportunity to earn an ABET (formerly Accreditation Board for Engineering and Technology)-accredited bachelor of science degree in engineering online (some lab time required). (See the Strategic Communications work group's progress on page 12.) In February 2009, the Engineer School Department of Instruction invited the International Committee of the Red Cross to speak to the ECCC. The ECCC partnered with academia (Missouri S&T), SAME, and the Missouri State Emergency Management Agency (SEMA) to conduct Structural Assessment Visual Evaluation (SAVE) training, not only to make officers available for state disaster assistance during their student time but also to hone wartime damage assessment skills. Media training, in partnership with journalism students from the renowned University of Missouri (Columbia) School of Journalism, was so successful that it is being developed for use across the United States Army Military Police School and the United States Army Chemical, Biological, Radiological, and Nuclear (CBRN) School. Captains are taught principles of dealing with the media and are videotaped in scenario-driven interviews for peer analysis.

Improvements in Engineer School Methods of Instruction. Testing out/validation of instruction continues to be developed. Experimentation to test out student officers and offer more advanced substitute courses has revealed a student reluctance to attempt validation and a need to formalize and grow alternative subjects, should students "validate" normal course offerings. Additionally, Dr. Brock Barry, Purdue

University, and soon-to-be USMA civil engineering professor, spent a few days at the Engineer School, made recommendations for classroom improvement, and began forging a closer relationship for a USMA–Engineer School partnership. Captain–lieutenant mentorship/integration began where feasible between ECCC and BOLC students. For example, students who are lieutenants must receive a company operations order (OPORD) given by a captain who is being graded by a senior evaluator, and lieutenants must subsequently write a platoon OPORD for evaluation. Additional hands-on activities and integration across the BOLC–ECCC–NCO–warrant officer courses have occurred via tactical exercises without troops (TEWTs).

Technology in the Classroom. Use of technology in the classroom continues to progress. DARWARS Ambush! route clearance simulation training within BOLC and the Advanced Noncommissioned Officer Course (ANCOC) collaboration has been very useful and continues to expand and improve. The "Think Like a Commander" United States Army Training and Doctrine Command (TRADOC) leadership simulation was not as useful as hoped. "Turnitin®" is being used to assist students with writing assignment documentation and as a bulwark against occasional plagiarism. Tablet personal computers (PCs) have been purchased for one ECCC small group, and the second pilot of use of the Tablet PC and e-books is underway. The first pilot experienced organizational and technical challenges. Piloting has been completed and a purchase of Classroom Response Systems (CRS) is underway for BOLC. CRS is a software environment for developing and administering questions via PowerPoint®. Students input their answers using wireless devices, and a receiver connected to the instructor's computer tabulates the results for immediate feedback that is visible to all. Although uses of the system are numerous, this system particularly enhances interactive, student-centered learning by real-time compilation of student responses to checks on learning via wireless technology. Feedback to students and instructors allows for more efficient and effective learning.

Warrant Officer 210A Course. This course has been redesigned, with much more emphasis on technical competency and certification. Course growth from 12 to 26 weeks is now being worked through the TRADOC course development process.

Civilian Education Options. The civilian education options for the Regiment are still largely the cooperative degree program with Missouri S&T. The ECCC Reserve Component students now have an avenue to achieve an engineering master's degree, and a follow-on doctoral program has been publicized by Missouri S&T. A series of new, online ABET-accredited engineering degrees via the University of North Dakota is explained in the Strategic Communications work group progress.

Way Ahead

Most of the effort during the past several months has been internal to the Engineer School. External partnership needs to be reinvigorated. This emphasis will include multi-Service and joint training, officer exchanges, and concepts like the Joint Engineer Training Center of Excellence. Partnership with the USACE courses and joint, interagency, intergovernmental, and multinational (JIIM) educational opportunities are needed. Since the various Service chief engineers are scheduled to speak at ENFORCE 2009, rejuvenation of these partnerships is a goal.

A memorandum formalizing Engineer School participation in the USMA Master Teacher Certification Program will be written. The Engineer School Directorate of Training and Leader Development will investigate establishment of a funded graduate degree program with follow-on assignment to the School. It will also develop an instructor recruitment program from higher-performing ECCC graduates. The Engineer School is also exploring the possibility for general officer (Engineer School Commandant) senior rating of School officer instructors. Increased leveraging of TRADOC's Learning Services Division video teleconference training will also improve instructor competence.

The Engineer School Department of Instruction should soon complete planning for and execution of the Captains Career Course common-core redesign, as mandated by the new TRADOC Commanding General. How or if this initiative supports BGE is yet to be determined.

The ability of students to get an ABET-accredited engineering bachelor of science degree from SAME-brokered partnership with University of North Dakota will require Regiment-wide promotion.

Impacts and implementation of a new Noncommissioned Officer Education System (NCOES) will be determined over the course of the next several months.

"Human progress is neither automatic nor inevitable. . . Every step toward the goal . . . requires sacrifice, suffering, and struggle; the tireless exertions and passionate concern of dedicated individuals." — Dr. Martin Luther King, Jr.

Employment

Colonel Jose Cepeda, Engineer School Deputy Assistant Commandant for the Reserve Component, assumed leadership of the Employment work group when Colonel Robert Tipton assumed the duties of Engineer School Commandant late last fall.

Progress

"Green Pages" is a personnel tool designed to display an individual's talents, experience, and most desired assignments beyond current capabilities. Rather than contracting this initiative, AKO has begun improving the "My Profile" section, which will become the foundation of the Green Pages. Supplied with this additional data, HRC will be better informed in selecting the most qualified individuals for available positions or for consultation or reachback support.

DA Pam 600-3. The Engineer School submitted a final draft of DA Pam 600-3, Chapter 14, Engineer Branch career paths, near the end of December 2008. The new manual, which is to be published in the spring/summer of 2009, is out for DA-level staffing. The rewrite reflects a theme of continuous education and broadening both inside and outside of positions within the Engineer Branch. The objective is to promote the pursuit of education and certification throughout an officer's career and identify both key and developmental positions for each rank that broaden an officer's knowledge of all facets of engineer operations, to include geospatial, USACE, facilities, combat, construction, and maneuver support. When combined with a quality senior mentorship and training program, this manual will provide a road map to producing high-quality engineer officers for our Regiment. A special team will be formed to analyze at least three courses of action, study potential impact on the Regiment, and make recommendations at ENFORCE 2009.

Way Ahead

Further definition, scope, and boundaries are needed for Green Pages, as well as talent-matching rules. A pilot program of its use will follow. There will be continued collaboration among the Engineer School, DA G1, G6, AKO, and HRC.

A major breakout group session for ENFORCE will address engineer military occupational specialty (MOS) and skill identifier (SI) considerations, as well as professional requirements and certifications. This ENFORCE breakout group will be led by Lieutenant Colonel Keith Dupont. The issue is whether to create two or more specialized officer area of concentration (AOC) codes within the Engineer Branch and manage our officers according to the AOCs. While the current DA Pam 611-21, *Military Occupational Classification and Structure,* lists 21A, 21B, and 21D as separate and distinct AOCs, DA Pam 600-3 doesn't address the differences, and Engineer Branch and the Army aren't really managing our officer population by separate AOCs. This will be a major focus topic for this year's *Building Great Engineers II* ENFORCE Conference. The courses of action (COAs) are as follows:

- ***COA 1:*** *Develop Additional Areas of Concentration.* AOCs create "minibranches" within the Engineer Branch. Officers will be accessed into each AOC based on their educational background and experience, instead of requiring that all officers fulfill all duty positions. By being grouped into concentrations, officers will experience similar positions during their career. This will incrementally develop officers' abilities and ensure that those competencies are not lost by misaligned position requirements and personnel capabilities.
- ***COA 2:*** *Develop Skill Identifiers.* SIs identify duty positions that require individuals with specific skills. Officers are not required to fill a position with which they share a skill code; however, personnel managers are able to quickly identify qualified personnel for specialized positions during the assignment process. Because SIs are coded in the modified table of organization and equipment (MTOE), the training that individuals need to fill those positions is funded by DA.
- ***COA 3:*** *Increase the Number of Project Development Skill Identifiers.* Project development skill identifiers (PDSIs) are codes given to personnel based on specific experiences or training they have received. PDSIs allow assignment officers to quickly identify personnel with specific backgrounds. Because PDSIs are not coded in the MTOE, there is no forcing function to provide training; however, they allow the branch to better employ officers with specific skills and experiences.

There is a need to continue studying existing HRC policies and practices and identify which must be changed.

Another employment-related breakout group at ENFORCE 2009 will determine how to best get engineers into short-term USACE/DPW positions and establish a "partnership program" to link USACE/DPW with field units. This breakout session will be led by Colonel Janice Dombi.

The Regimental Command Sergeant Major will be working BGE issues in support of NCOs.

"Progress always involves risk; you can't steal second base and keep your foot on first base."—Frederick Wilcox

Retention

Colonel Andrew Phillips, the United Kingdom MANSCEN Liaison, continues to lead the Retention work group of BGE.

Progress

Reimbursement of Fees. The reimbursement of fees associated with PE license renewal and for gaining a PE license for the first time, regardless of the current position held by the applicant, was investigated. A proposal to gain authorized delegation for USACE/Engineer School to fund this initiative has been submitted to the Office of the Secretary of Defense (OSD), and a decision is expected soon. If successful, a policy letter will be issued. In parallel, details of other potential sources of funding for PE licensing (such as tuition assistance and the GI Bill) will be publicized Regimentwide as part of the strategic communications plan.

Branch Mentorship. Branch mentorship for junior engineer officers employed outside an engineer chain of command is a complex issue that will be examined in more detail by a breakout group at ENFORCE 2009.

Transportability Between the Regular Army and Reserve Component. The issue of transportability between these components in order to improve retention is an issue that is being examined Armywide by Headquarters, DA, and progress is being monitored to identify any targets of opportunity for the Engineer Branch.

Way Ahead

A plan for leading an ENFORCE 2009 breakout group on branch mentorship for junior engineer officers employed outside an engineer chain of command has been drafted. If this is an area of interest to you, plan to join the breakout session.

We continue to monitor progress of the Continuum of Service Opportunity initiative to remain abreast of progress and identify targets of opportunity for the Engineer Branch.

"He who cannot change the very fabric of his thought will never be able to change reality, and will never, therefore, make any progress." — Anwar Sadat

Strategic Communications

Dr. Robert Wolff, Executive Director, Society of American Military Engineers (SAME), is the work group lead.

Progress

Marketing Brochure. An Army Engineer Regiment (AER) marketing brochure was printed and distributed via United States Army Cadet Command and USACE districts. It has since been revised to correct some missing units. A brochure is being reprinted for wider distribution.

AKO/Engineer School Websites. An AER briefing, posters, and frequently asked questions (FAQs) were provided on AKO and Engineer School websites.

Visit Engineering Schools/ROTC Units. USACE implemented an initiative to visit engineering schools and ROTC units to market AER.

DA-Level Marketing Opportunities. The work group obtained a DA point of contact for the McCann Erickson contract and intends to follow up to ascertain DA-level marketing opportunities.

Online Engineering Degrees. SAME negotiated with the University of North Dakota (UND) regarding online engineering degrees. When the memorandum of agreement is signed and implemented, UND will offer undergraduate ABET-accredited online degrees in chemical, civil, mechanical, and electrical engineering. UND will possibly add petroleum engineering in the near future. These degrees require at least 125 (semester) credits to be obtained in an estimated six-year period, predicated on an individual taking two courses per semester. The completion time will be shorter if an individual is awarded credits for experience in an engineering field or has undergraduate credits that can be transferred to the UND degree program. The only resident requirement is for approximately five weeks of laboratories at UND (the number of weeks/visits to UND may differ depending on labs that students have already taken at another college/university) or other location sponsored by SAME and approved by UND. UND assists in the arrangement of inexpensive housing for students while they are attending these resident programs. It is anticipated that most of the cost will fall under current tuition assistance available to military personnel.

Way Ahead

The work group will continue to support the communications needs of the *Building Great Engineers* Campaign Plan and other BGE work groups. Signing and implementation of the SAME–UND memorandum of agreement is expected very soon. The work group will continue to update and improve the package of documents that is now on the Engineer School public website for use in talking to high school and college students about the opportunities for a career (military and civilian) in the Engineer Regiment.

We need to develop a concept and cost estimate for an 8- to 10-minute video that can describe the elements of the AER for use in recruiting and upload it to the regimental websites and YouTube. Social networking is next among our targets.

In the near future, we intend to identify points of contact who can best represent the career opportunities in the United States Army Reserves, Army National Guard, USACE, and IMCOM for officers leaving active duty early in their careers.

Conclusion

With measurable progress across all BGE work groups, major progress occurred with SAME's establishment of online ABET-accredited engineering degrees via the University of North Dakota; rewrite of DA Pam 600-3, Chapter 14, Engineer Branch career paths; initial decisions and development of Green Pages via AKO; numerous Engineer School internal training and education initiatives; and development of strategic communications media for use by all members of the Regiment.

Five BGE breakout work groups have been identified for ENFORCE 2009. Most profound will be the work regarding which course of action to pursue in commissioned officer professional development and career management (generalization versus specialization). This is a significant milestone and will guide future progress for many initiatives across several BGE work groups.

Several unsung heroes of the Engineer Regiment, unmentioned here, have shouldered the load in making the first push of the flywheel. They have experienced the excitement and satisfaction of making a lasting, positive, significant difference for the Regiment.

"It behooves every man to remember that the work of the critic is of altogether secondary importance and that, in the end, progress is accomplished by the man who does things."—Theodore Roosevelt

Where's your shoulder? Lay hold! Heave!

Endnote

[1] Jim C. Collins, *Good to Great,* Harper Business, New York, 2001.