

ENGINEERING AND DESIGN QUALITY MANAGEMENT PLAN

1. Purpose. This plan is established in accordance with ER 1110-1-12, Engineering and Design, Quality Management. The intent of this plan is to define and document those philosophies, policies, and procedures that influence the quality of the products and services provided by the division.
2. Applicability. This policy is applicable to all Savannah District Engineering Division elements.
3. Background. The control of quality of the engineering product involves the application of a variety of techniques and tools. These techniques include the development and implementation of appropriate policies, criteria, and procedures. Equally important is the need to provide adequate tools for executing a quality management program. These items include knowledge and application of special programs like Partnering and Continuous Quality Improvement (CQI), proper equipment, and training. Finally, there needs to be a clearly enunciated set of goals and philosophies regarding customer service and production of a quality product. This plan documents the policies and procedures and provides guidance on providing additional tools and a philosophy for providing a quality control and a high level of customer service.
4. Philosophy. Any effort to manage the quality of an engineering product can be no better than the commitment on the part of the team member who executes the task. No amount of written procedures can, of themselves, assure quality. However, policies and procedures that are understood and applied, can facilitate consistency of effort and are an important tool in quality management. Such procedures, coupled with a commitment on the part of management to produce a quality product and a clear enunciation and demonstration of this commitment, can be major factors in producing consistent quality products. This commitment must be one part of a three-faceted approach to balance constraints of time and cost with product quality. These issues must be considered within the context of Corps and district goals and strategies and within the philosophy of the Engineering Division Quality Statement (Appendix K-1) and Team Member Code of Conduct (Appendix K-2). Collectively, these efforts define the philosophy and commitment to providing consistent quality to all customers of the division and Savannah District.
5. Scope. This plan is applicable to all programs supported by or executed within Engineering Division. These include but are not limited to the following: Military, Design and Construction including O&M, HTRW Planning & Design & Construction, and Support for Others. This plan should be considered a living document that will be revised and updated as necessary to meet changing program needs and customer expectations.
 - a. Management Responsibility.
 - (1) It is the responsibility of all managers in the division to assist in development of appropriate policies and guidance for their area of responsibility and to assure implementation of those procedures upon adoption. Managers are also responsible for recommending revisions to established guidance when necessary, including necessary updates to this plan.

(2) All managers are responsible for implementing this plan at their respective level within the division. This includes preparation of appropriate organization specific goals and policy guidance, assuring training of personnel in the plan and mission needs as well as utilization of all the above tools for quality enhancement. These aspects of management responsibilities need reinforcing:

- (a) Assure fair ratings and address personnel issues promptly.
- (b) Establish and maintain open and free communications and encourage initiatives for improvement.
- (c) Recognize good performance and reward excellence and initiative. Use both the district incentive awards program and Engineering Division initiatives as appropriate. These include performance awards, on-the-spot recognition, time off awards, Superstar and Team of the Month, EN coffee mugs and folders.

b. Team Member Responsibility. It is the responsibility of all team members to follow established policies and procedures and to elevate to management where these procedures are ineffective or unduly restrictive. Team members should do their part in maintaining open communications and faster improvements by recommending cost effective process evaluations and changes. Team members should input to a project schedule and budget and, once accepted, execute in accordance with the plan, including promptly elevating concerns over time, cost, or quality slippage.

7. Written Policies and Procedures. Engineering Division implementation of ER 1110-1-12 is contained in subsequent sections of this plan and appendices thereto. Sections are generally classified as defined in the ER and address the following aspects of written guidance:

- a. Quality Control Plan
- b. Engineering and Design Criteria Management
- c. Project Coordination
- d. Design Process, Coordination and Review
 - (1) Architect-Engineer Designs
 - (2) In-House Designs
- e. Design Tools
- f. Monitoring and Control of Time and Cost
- g. Designer Involvement During Construction

- h. Designer Performance Evaluation
- i. Lessons Learned and Customer Feedback
- j. Special Programs (VE, AE Responsibility, ACAS)

The above sections are generic to all organizations within Engineering Division. Specific procedures and policies within each branch or section are to be developed and included as an appendix to that organization's plan. These include such items as standard specific instructions, installation specific criteria, design and review check lists, etc.

8. Quality Enhancement Tools. It is the position of Engineering Division that a variety of tools should be brought to bear on execution of a program to continually enhance responsiveness to the customer while maintaining cost control and quality. To this end, the division is committed to evaluating and using the proven and positive techniques including Training, Partnering, Continuous Quality Improvement, and the maintenance of state of the art automation technology and other equipment.

a. Partnering.

(1) Customers - Formal partnerships are encouraged in all aspects of the design process. As of the date of this draft, partnering agreements have been developed with military customers at Fort Bragg, Fort Benning, and Robins Air Force Base. Similar agreements are to be pursued in conjunction with PPMD, with Fort Jackson, Moody and Seymour Johnson Air Force Bases, and other customers. These initiatives are typically initiated by PPMD and supported by Engineering Division. Periodic follow-up sessions should be expected to be required as personnel change in the district and at the installations and bases.

(2) Design and Construction Partnering - The district is committed to evaluate and use the positive aspects of partnering with customers and A-E's during the design process and to support initiatives by Construction Division with construction contractors.

(3) Environmental - Partnering sessions with environmental; agencies and regulators are strongly encouraged.

b. Continuous Quality Improvement (CQI). Supervisors will use the existing Savannah District TQM structure to assure that all new employees receive orientation in basic TQM philosophy and principals. Employees will also be provided a copy of procedures for initiating process improvements within the division as defined in the CQI Infrastructure plan (Appendix K-6).

c. Automation Capability. It is the responsibility of the Spatial Engineering Section (EN-EC) to plan, program, and recommend automation initiatives to maintain design capability (hardware and software) at or near state-of-the-art. They are to also establish division-wide standards and seek opportunities to improve and expand customer support in the automation arenas including systems such as: CADD,

AM/FM, GIS and the evolution to a project integrated database on selected projects. To the extent possible within funding availability, Engineering Division will leverage automation capability to the maximum extent possible to improve design, management, and administrative processes. Each branch is responsible for coordinating with EN-EC to assure effective use of available automation technology. EN-EC will assure effective use of available automation technology. EN-EC will team up with each branch at least annually to identify needs, promote and explain current capabilities, assure system compatibility, inventory resources, and identify actions to improve capability.

d. Field Capability and Equipment. Engineering Division is currently committed to the maintenance of a "core" level of in-house capability in topographic and hydrographic surveying and in-field explorations for conventional and HTRW geotechnical investigations. Annual operating budgets will be developed and reviewed so that equipment acquisition can be prioritized to best meet mission needs. Five-year plans will be developed by Survey Section and Explorations Unit. Upon review and approval, these plans will serve as guidance for annual budgeting and acquisition. The intent is to maintain state of the art capability for the mission requirements in hydrographic surveying and field investigations consistent with budget constraints.

e. Training. Engineering Division guidance on prioritization of training is contained in Appendix BK-7. The annual training budget is established as a percentage of total division salary. This figure is currently 2.45 percent. Labor is not included in this target. To best meet mission needs and provide customer service, training prioritization is frequently required. Technical training should take precedent over nontechnical, necessary courses for less experienced employees; new missions take precedent over old, journeyman positions take precedent over management and administrative training, and local or nearby courses take precedent over those further way. Careful application of resources has demonstrated that most training needs can be met within the current budget.

f. Value Engineering and Architect Engineer Responsibility Programs. Though addressed by separate SOP's in this plan, emphasis shall be given to the utilization of these programs to reduce costs and maintain expectation of quality for both in-house and A-E designs.