

CEMDC

Engineer Regulation
No. 10-1-46
Change 1

13 March 2013

Organization and Functions
MISSIONS, ORGANIZATIONAL STRUCTURE, AND FUNCTIONS
MARINE DESIGN CENTER

TABLE OF CONTENTS

| PARAGRAPH..... | PAGE |
|--|------|
| 1. Purpose..... | 1 |
| 2. Applicability | 1 |
| 3. Distribution Statement..... | 1 |
| 4. References..... | 1 |
| 5. Availability | 2 |
| 6. Policy | 2 |
| APPENDIX A..... | A-1 |
| A-1 Mission Statement..... | A-1 |
| A-2 Organizational Structure | A-1 |
| A-3 Mission and Functions | A-1 |
| 1. Executive Office: Paragraph 001..... | A-1 |
| 2. Program Management Branch: Paragraph 002..... | A-2 |
| 3. Design Branch: Paragraph 003 | A-3 |

DEPARTMENT OF THE ARMY
U.S. Army Engineer, Marine Design Center
Corps of Engineers
Philadelphia, PA 19107-3391

ER 10-1-46
Change 1

CEMDC

Engineer Regulation
No. 10-1-46
Change 1

13 March 2013

Organization and Functions
MISSIONS, ORGANIZATIONAL STRUCTURE, AND FUNCTIONS
MARINE DESIGN CENTER

1. Purpose. This regulation (ER):

a. Designates the major organizations, missions and functions of the Corps of Engineers Marine Design Center (CEMDC).

b. Establishes procedures for revising the organization structure and missions and functions.

2. Applicability. This regulation applies to the Marine Design Center. Unit Identification Code is W428AA.

3. Distribution Statement. This regulation is approved for public release and distribution is unlimited.

4. References.

a. Army Regulation 570-4, Manpower Management.

b. Memorandum, SAMR-FMM-AA, 1 Aug 2012, subject: Validation of Manpower and Organizational Study of the U.S. Army Corps of Engineers (USACE) Marine Design Center (MDC).

c. Memorandum, DAMO-FMP, 4 Sep 2012, subject: Manpower and Organizational Study of the U.S. Army Corps of Engineers (USACE) Marine Design Center.

d. OPORD 2010-67, CECG, 071100R Oct 2010, subject: HQUSACE and MSCs Manpower Study.

This regulation supersedes ER 10-1-46, dated 26 March 1990

ER 10-1-46, Change 1
13 Mar 13

e. Memorandum, CERM-M, 19 Sep 2012, subject: Manpower and Organizational Study of the U.S. Army Corps of Engineers, Marine Design Center.

5. Availability. This regulation is available at the following web site:
<http://www.usace.army.mil/publications/>.

6. Policy. Any new requirement (workload) whether military/civil funded, direct or reimbursable that was not validated in the study must follow the formal concept plan process as published by Headquarters, Department of the Army G-37 Director, Force Management, and Headquarters, U.S. Army Corps of Engineers (HQUSACE) G-31 to request additional requirements and to ensure it is aligned with Manpower Study guidelines. Concept plans will be submitted to HQUSACE G-31 for staffing and will follow procedures outlined by G-31.



Appendix
A – Missions, Structure
and Functions

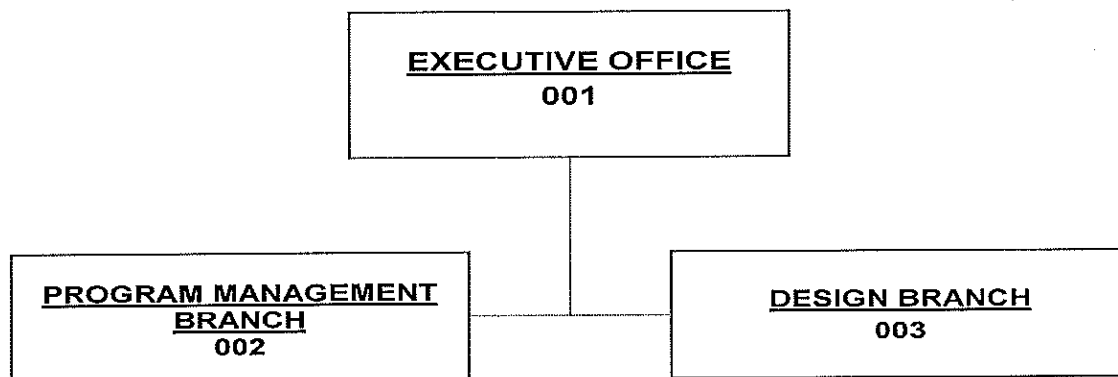
WILLIAM F. GRETZMACHER III
Director, MDC

DISTRIBUTION:
CEMDC

APPENDIX A

A-1. Mission Statement. The Marine Design Center (MDC) is the Corps of Engineers center of expertise and experience for the development and application of innovative strategies and technologies for naval architecture and marine engineering; provide total project management including planning, engineering, and shipbuilding contract management in support of Corps, Army, and national water resource projects in peacetime, and augment the military construction capacity in time of national emergency or mobilization.

A-2. Organizational Structure.



A-3. Mission and Functions.

1. Executive Office: Paragraph 001

a. Mission. The mission of the MDC Executive Office is to provide strategic direction, command and control, as well as administrative and clerical support for the Marine Design Center in execution of the Marine Design Center missions.

b. Functions.

(1) Conducts Program Management and Executive Performance Oversight. In close coordination with the Director of Civil Works, the Chief of Operations and the Chief of the Navigation Branch at Headquarters USA Corps of Engineers (HQUSACE) and in the absence of a general officer, provides leadership and command and control over all facets of the MDC. Manages the floating plant design and construction and two program components; Plant Replacement and Improvement Program (PRIP) and Reimbursable work. Participates in various forums to represent the organization. Conducts communications with corporate executives, representatives of marine regulatory bodies, representatives of the marine community of practices, major suppliers, Architect-Engineer firms, and other federal agencies. Participates in trade

ER 10-1-46, Change 1
13 Mar 13

group functions on behalf of the Corps. Interacts with higher headquarters on various directed initiatives. (DOD 7000.14-R, ER 10-1-2, ER 10-1-46, ER 1110-1-8158, ER 1125-2-301, ER 1130-2-500/EP 1130-2-500, ER 1140-1-211, ER 1140-3-1, ER 1-1-6, ER 37-1-29)

(2) Conducts Contract Administration and Contract Support. Provides all services required to support contract actions and general acquisitions. Examples include processing invoices and payments in Corps of Engineers Financial Management System (CEFMS), assuring proper coordination of correspondence, archiving of records, filing, responding to contractor administrative inquiries, and assisting with contract coordination. Facilitates solutions to complex contractual issues. (DFARS 201.602-2, AFARS 1.602-2-90)

(3) Conducts Budget and Manpower Management. Provides all services to develop operating budgets and manpower submittals. Submits, monitors and reports on each. Manages all inquiries from higher authority or peers related to budget and manpower. Interfaces with MDC and Philadelphia District management reference the operating budget and manpower. Implements guidance provided by management. Assures internal controls are in place, managed, and reported. (DOD 7000.14-R, AR 11-2, AR 570-4, ER 11-1-30, ER 37-1-24)

(4) Management, Oversight and Administration. Supervises and directs project managers. Assures that the Program is accomplished in accordance with quality, schedule, and cost commitments. Provides administrative support to the organization such as record keeping, timekeeping, travel scheduling and administration, archiving, correspondence, credit card purchasing, reception duties, and filing. Provides briefings for General Officers and other USACE representatives. Provides organizational level guidance related to organizational management such as in the development of internal procedures for functions such as travel, timekeeping, attendance, evaluations, internal controls, quality management, and personnel management. (DOD 7000.14-R, AR 715-xx, ER 55-1-2)

2. Program Management Branch: Paragraph 002

a. Mission. The mission of the MDC Program Management Branch is to manage and execute the planning, engineering, and shipbuilding contract management program for the MDC. Members integrate and lead the Project Delivery Team through the lifecycle of the projects. (ER 1110-1-8158, ER 10-1-46, ER 5-1-10)

b. Functions.

(1) Project Management. Manages MDC projects and tasks in accordance with the USACE Project Management Business Process (PMBP) and in accordance with the Project Management Institute's Project Management Book of Knowledge (PMBOK). (ER 5-1-11, ER 5-7-1)

(2) Organizational Administration. Provides administrative support to the organization. Examples include knowledge management initiatives, record keeping and archiving of project products and reports, time entry, travel planning, travel authorization, scheduling and support of field staff, specialized training and conference attendance. (ER 1110-1-8158, ER 10-1-46, ER 5-1-10)

(3) Program Administration. Administers the overall MDC Program and manages the MDC Plant Replacement and Improvement Program (PRIP). This includes coordination with HQ regarding budgetary needs, submitting financial requests, processing fund movements, reporting, processing transactions in Corps of Engineers Financial Management System (CEFMS), keeping programmatic records, and supporting executive needs related to the overall program. This function also includes full administration of the reimbursable program to include management of Military Interdepartmental Purchase Requests (MIPRs), coordination of customer fund sites in the Project Management Information System (P2), and interfaces with auditors and other program reviews. (ER 1110-1-8158, ER 10-1-46, ER 5-1-11, ER 37-1-24, ER 1140-3-1)

(4) Contract Management. Serves as either the Contracting Officer Representative (COR) or as consultants to the Contracting Officer and his/her staff related to contracts for MDC projects and for Architecture/Engineering (A/E) services. Safe keeps all mandated records. Lays the foundation for contract activity to include writing scopes of work for contract modifications, coordinating scopes of works with contractors, evaluating technical and cost proposals, and acquiring customer approval and funding. Provides the foundation for the settlement of contractual requests for adjustment or contract claim settlement. (ER 10-1-46, ER 1110-1-8158, ER 715-1-10, DFARS 201.602-2, AFARS 1.602-2-90)

(5) Supports USACE Initiatives and Contingency Operations. Assigns staff to assist with contingency operations and emergency operations as needed and in accordance with USACE Goal number one, which is to support the Army and the military. Situations vary from supporting military operations in foreign countries to supporting emergency disaster relief in support of Army missions. (ER-10-1-2, Campaign Plan)

3. Design Branch: Paragraph 003

a. Mission. The mission of the Marine Design Center Design Branch is to support the Project Management Business Process by providing highly skilled, knowledgeable, technical members to the Project Delivery Teams. Team members provide technical expertise in the areas of: Naval Architecture, Marine Engineering, Cost Estimating, Project Planning, and On-Site Inspection in the planning phase through design and preparation of final construction plans, specifications, invitations for bid, requests for proposals, and technical support during construction, warranty periods, and beyond. Design Branch expertise extends to all Corps vessel types, commercial standard vessel

design, and to marine shore side facilities. (ER 1110-1-12, ER 1110-2-1150, ER 1130-2-500, EP 1130-2-500, ER-1180-1-6, ER415-1-13, ER 5-1-11)

b. Functions.

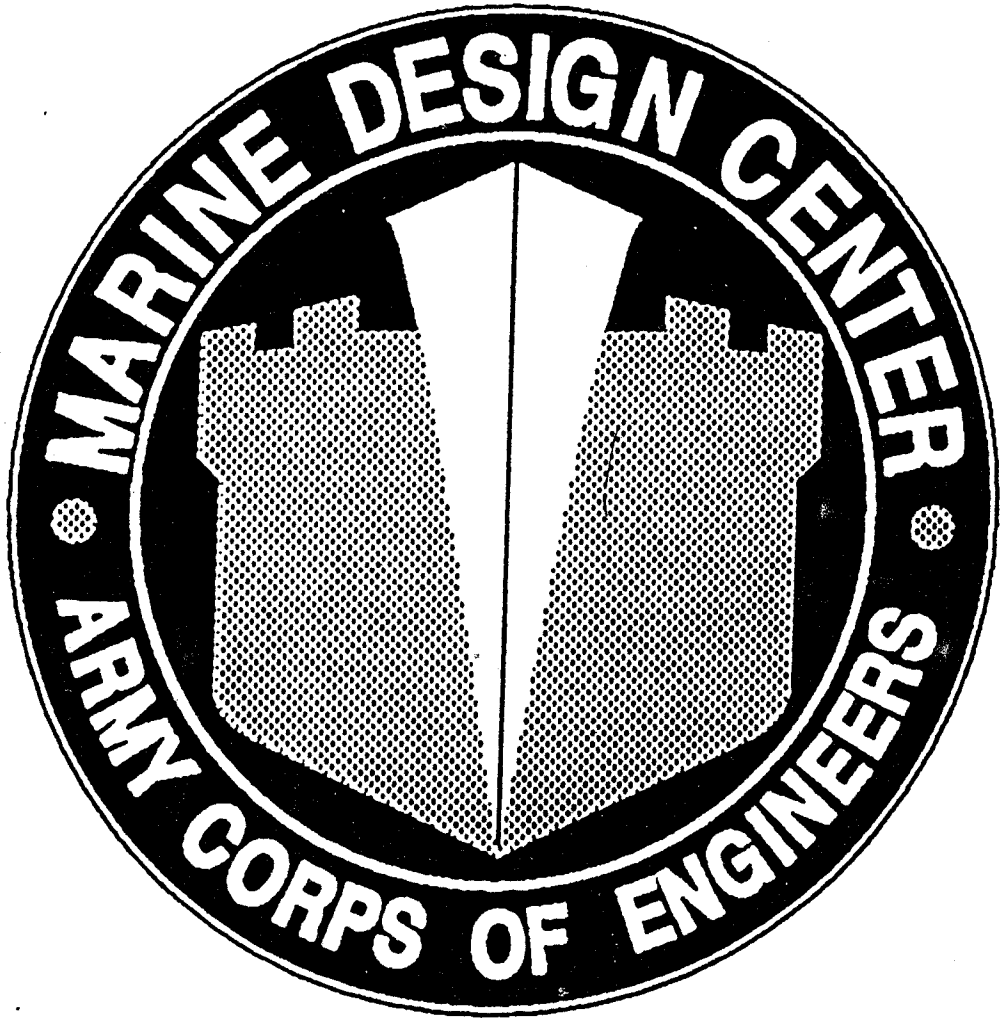
(1) Technical Performance Oversight. Controls the design process in the project concept and design phases, ensures customer mission requirements are satisfied, together with safety and regulatory requirements. In the project construction phase, monitors the ongoing construction project (on-site) to ensure that the technical and performance features for the project are met. (ER 1110-1-12, ER 1110-2-1150, ER 1130-2-500, EP 1130-2-500, ER-1180-1-6, ER415-1-13, ER 5-1-11)

(2) Engineering and Design. Applies Naval Architectural, Marine Engineering, and other Engineering specialty areas in an iterative development process culminating in the technical definition of a vessel. The technical definition must meet mission requirements, and must be suitable for bidding and construction. Additionally, the same technical capabilities can be applied on a marine related task basis or in marine consultation when the ultimate output is not a complete vessel. (ER 1110-1-12, ER 1110-1-1300, ER 1110, ER 1110-1-8155, ER 1110-2-1150, ER 1110-345-723, ER 1130-2-500, EP 1130-2-500, ER 415-1-13, ER 415-345-42, ER 5-1-11, ER 715-1-10)

(3) Floating Plant Center of Expertise & Business Line Oversight: Applies extensive Marine Design Center knowledge base (both historical and vessel type specific) to inform the Corps of Engineers decision making process, as pertains to the Corps fleet. Applies the same expertise to represent USACE in marine applications with other agencies, regulatory bodies, marine safety committees, and in rule making situations. Serves as USACE's marine technical consultant in all relevant situations. (ER 10-1-46, ER 1110-1-8158)

(4) Support USACE initiatives and Contingency Operations. Assigns staff in appropriate situations to contingency operations and emergency operations as needed and in accordance with USACE Goal number one, which is to support the Army and the military. Situations vary from supporting military operations in foreign countries to supporting emergency disaster relief in support of Army missions. (ER 10-1-2, ER 5-1-11)

(5) Management, Oversight and Administration. Provides organizational level guidance related to organizational management such as in the development of procedures for functions such as specification preparation and review, quality assurance at construction sites, timekeeping, attendance, staffing, resource allocation, internal controls, quality management, personnel management, knowledge management initiatives, record keeping and archiving of technical products and reports, travel planning, travel orders and voucher review, scheduling and administration of field work, management of training and conference attendance, space management and Information Technology (IT) coordination. (DOD 7000.14-R, AR 11-2, AR 715-xx, ER 11-1-30, ER 1-1-50, ER 5-1-11, ER 55-1-2)



DEPARTMENT OF THE ARMY
U.S. Army Corps of Engineers
Washington, D.C. 20314-1000

ER 10-1-46

CERM-00

Regulation
No. 10-1-46

26 March 1990

Organization and Functions
U.S. ARMY ENGINEER MARINE DESIGN CENTER

1. Purpose. This regulation defines the mission and establishes the organizational structure of the U.S. Army Engineer Marine Design Center (CEMDC).
2. Applicability. This regulation is applicable to all USACE/OCE elements and all Field Operating Activities.
3. Establishment. The U.S. Army Engineer Marine Design Center was organized circa 1908 at headquarters and has been in continuous operation. It was transferred from the USACE Water Resources Support Center and organized as an FOA assigned to HQUSACE, by Permanent Orders No. 35-1 dated 17 October 1988.
4. Command. The Director, MDC reports to the Director of Civil Works. Supervision is delegated to the Chief, Operations, Construction and Readiness Division. Program review is provided by the Marine Engineering Board (ER 15-2-6).
5. Funding. The Marine Design Center is a fully reimbursable FOA with all funding derived from Work Orders from other FOA and direct allocation of funding from the Revolving Fund Plant Replacement and Improvement Program (PRIP).
6. Mission. Provides a center of expertise for the development and application of innovative strategies and technologies for naval architecture and marine engineering within USACE. Provides planning, engineering and shipbuilding contract management in support of the Corps of Engineers, the Army and national water resource projects in peacetime, and augments the military construction capability in time of national emergency or mobilization.
 - a. Carries out the program for design and construction of all Revolving Fund and project-owned floating plant for the Civil Works Directorate (ER 1125-2-303).
 - b. Performs concept definition and concept development of new and replacement vessels. When appropriate, the concept is developed on a system basis with the vessel integrated into fleet and/or land-based operations.
 - c. Performs feasibility studies, executes preliminary (concept) design and prepares current working cost estimates and design memoranda (25% design effort, ER 1125-2-301), to support requests to HQUSACE, ASA, OMB and Congress for authorization to acquire the floating plant.

ER 10-1-46
26 Mar 90

d. Prepares detail (final) design plans and specifications, with construction cost estimate, for the procurement of new, or the alteration or major rehabilitation of existing, floating plant.

e. Determines appropriate contract strategy for the project and prepares contract package. Manages all phases of the construction contract, reviewing builders plans, resolving issues, administering contract changes, assuring quality work, and tracking progress and cost.

f. Upon request by an FOA, provides troubleshooting and analytical assistance relating to the design or construction of a vessel, or the selection and performance of any machinery, for the purpose of solving unusual problems, improving performance, or enhancing safety.


g. Makes technical presentations of designs to the Marine Engineering Board, to support FOA requests for project authorization, and in-progress reviews of the ongoing program.

h. Provides naval architecture and marine engineering support, including contracting and contract management, to other DOD activities and to other Government agencies as authorized by the Director of Civil Works.

i. Executes a continuing program of centralized barge procurement (EFAR 17-9104, Ch 1, 15 Jan 85).

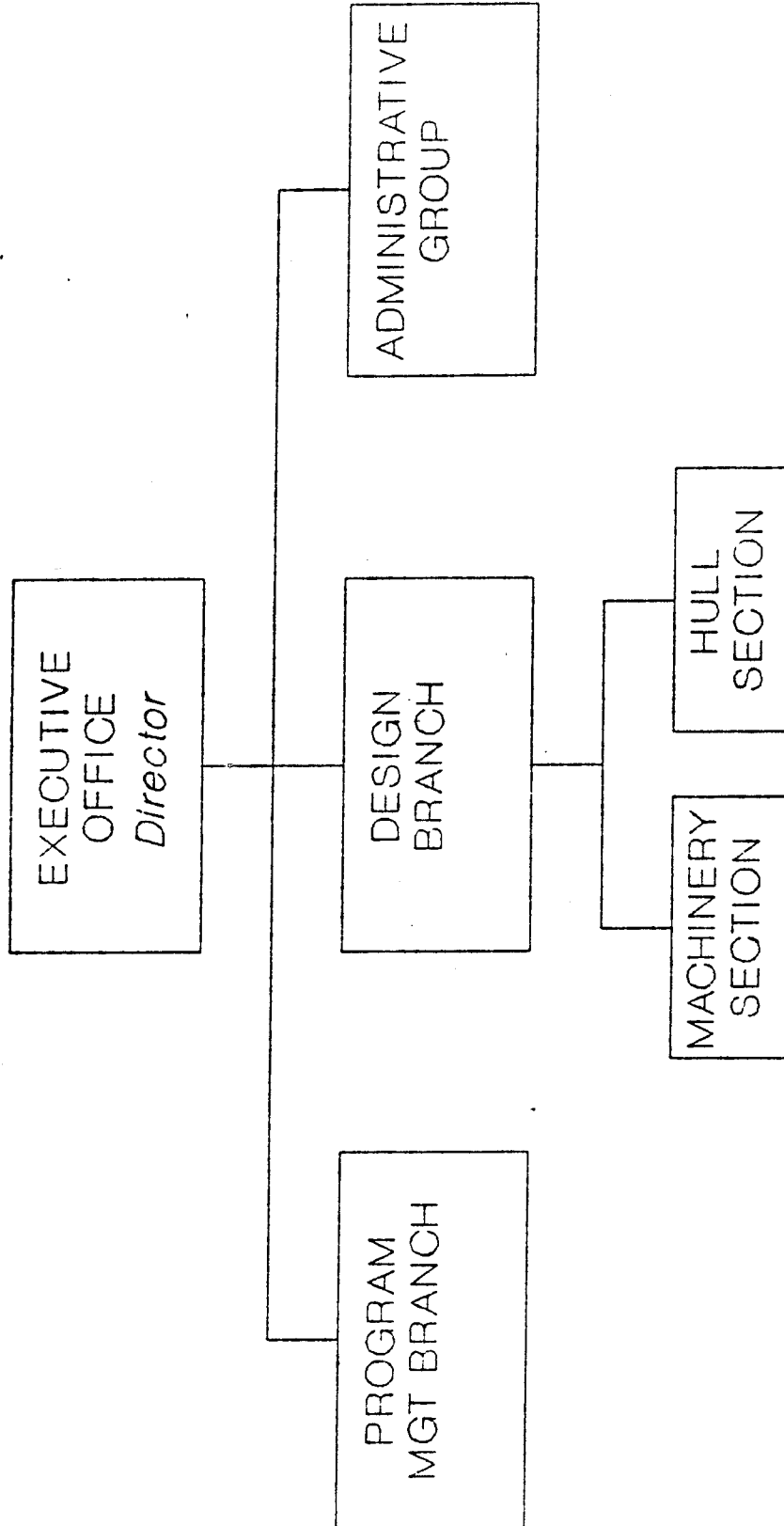
FOR THE COMMANDER:

1 APPENDIX
(Appendix A Organi-
zation Chart)



ALBERT J. GENETTI, Jr.
Colonel, Corps of Engineers
Chief of Staff

U.S. Army Engineer Marine Design Center



**U.S. ARMY ENGINEER
MARINE DESIGN CENTER**

EXECUTIVE OFFICE

Keith W. Lawrence, P.E. Director
Supv. Naval Architect GM-15
597-4860 CEMDC

(1) David L. Horton, P.E. Deputy
597-4861 Dir. For
Project Mgt. CEMDC

(2) Vacant Administrative
597-4861 Officer CEMDC

(1) & (2) Have Collateral 1 GM
Assignments

U.S. Custom House
Philadelphia, PA 19106-2991
(215) 597-4748

**PROGRAM MANAGEMENT
BRANCH**

(1) David L. Horton, P.E. Chief
Supv. Interdisciplinary GM-14
597-4861 CEMDC

2 Sr. Project Manager (IPM) GS-13

2 Project Manager (IPM) GS-12

1 Engineering Tech. (V) GS-12

1 Contract Administrator GS-11

1 GM/6 GS

DESIGN BRANCH

John J. Magvarik, P.E. Chief
Supv. Mechanical Engr. GM-14
597-4748 CEMDC

1 Computer Equipmt. Analyst GS-11

1 Engineering Tech. GS-05

1 GM/2 GS

ADMINISTRATIVE GROUP

(2) Vacant GS-12
Administrative Officer CEMDC
597-4861

1 Secretary (Steno) GS-06

1 Management Asst. GS-05

1 Secretary (V) GS-04

1 Clerk Typist GS-03

5 GS

MACHINERY SECTION

Vinton C. Bossert, P.E. Actg. Chief
Supv. Mechanical Engr. GM-13
597-4748 CEMDC

4 Sr. Mechanical Engr. GS-12

1 Sr. Electrical Engr. GS-12

1 Mechanical Engr. GS-11

1 Electrical Engr. (V) GS-11

1 GM/7 GS

HULL SECTION

Gregory Lee, P.E. Chief
Supv. Naval Architect GM-13
597-4748 CEMDC

6 Sr. Naval Architect (1-V) GS-12

2 Naval Architect GS-11

1 Engineering Tech. GS-09

1 GM/9 GS

Approved: _____
01 Feb 90

Keith W. Lawrence
Keith W. Lawrence, P.E.
Director

MARINE DESIGN CENTER

MISSION

The Marine Design Center is the Corps of Engineers center of expertise for the development and application of innovative strategies and technologies for naval architecture and marine engineering. It provides total project management including planning, engineering, and shipbuilding contract management, in support of Corps, Army, and national water resource projects in peacetime, and augments the military construction capacity in time of national emergency or mobilization.

*"There are many arts,
all fine and splendid,
but none has so benefited the world
as the great art of engineering."*

— Benjamin F. Isherwood
(1822 - 1915)

ADMINISTRATIVE GROUP

MISSION

Provide all clerical and administrative support to the Marine Design Center staff.

FUNCTIONS

1. Prepare typed reports, correspondence, specifications, and data sheets.
2. Carry out secretarial duties for managers.
3. Transcribe dictation from tape.
4. Receive incoming calls and visitors.
5. Carry out filing and information management.
6. Perform timekeeping
7. Execute ADP programs for office automation and management.
8. Process incoming and outgoing mail.
9. Maintain stock of office supplies.
10. Make travel arrangements for staff.
11. Maintain MDC library.
12. Maintain MDC property records.
13. Maintain suspense system.
14. Manage small item procurements.
15. Manage office equipment service.
16. Manage contract services.
17. Perform records management.

PROGRAM MANAGEMENT BRANCH

MISSION

Develop, coordinate, and track the MDC engineering and design program through concept definition, estimating resource needs, project scheduling, and program review.

Carry out Life Cycle Project Management.

Prepare and manage the MDC Operating Budget.

Carry out special studies, investigations, and surveys.

Manage and administer A-E, GFE, and construction contracts.

FUNCTIONS

1. Carries out Concept Definition phase of new projects.
2. Prepares Scope of Work specification for MDC or A-E engineering effort.
3. Prepares Project Schedule for each project.
4. Prepares Manpower Estimate for each project.
5. Manage project funds. Prepare estimates and monitor obligations and expenditures.
6. Prepares regular progress/status reports for internal and higher level management review.
7. Prepares annual resource forecast and quarterly review and update.
8. Carry out studies and investigations, and prepare reports for distribution to ACE, on assigned R&D type projects.
9. Carry out special short-term projects assigned by the Marine Engineering Board.

10. Perform ship surveys for the purpose of:
 - a. Determining vessel condition.
 - b. Damage resulting from accident or collision.
 - c. Repairs needed in conjunction with conversion of transferred surplus vessels for ACE use.
 - d. Interferences and dimension lift-offs in existing vessels in way of new equipment installations, alterations, modernization or rehabilitation.
 - e. Adequacy of final plans and specifications developed for alterations, modernization or rehabilitations of vessels.
11. Upon request, provides cost estimates to Districts involved in contract negotiations.
12. Establishes and manages A-E contracts for design services.
13. Manages all GFE contracts.
14. Develop parts of specifications which are contractual rather than technical in nature, e.g., Special Contract Requirements and Inspection and Acceptance.
15. Carries out contract management and administration for all shipyard construction or conversion contracts.
16. Carry out biddability and constructability review of plans and specifications.
17. Coordinate sponsor operability review of plans and specifications.
18. Prepare Government Estimates of major equipment procurement and shipyard contract costs.
19. Make regular quality assurance visits to the shipyard.
20. Resolve contract problems, prepare descriptions of technical change, negotiate price, and initiate modification.

DESIGN BRANCH

MISSION

Perform functional engineering and design activities necessary to the projects and tasks assigned to the Marine Design Center by CE Districts and higher authority.

FUNCTIONS

1. Carry out feasibility studies for the conversion, repowering, or replacement of floating plant, and prepare reports of findings.
2. Prepare preliminary designs and trade-off studies.
3. Prepare technical sections of Design Memoranda preliminary to planning, authorization, and funding major projects.
4. Prepare detail designs of equipment, systems, and vessels.
5. Carry out engineering calculations and prepare a Final Design Compendium.
6. Prepare contract plans.
7. Write contract specifications.
8. Carry out plan review and approval of builders' drawings.
9. Perform marine engineering and naval architecture services for Corps of Engineers' Districts.
10. Perform engineering and design tasks unique to dredging systems, equipment, processes, operations, and methods for Corps of Engineers' Districts.
11. Provide consultations, assistance and general expertise in torsional vibration of machinery and the performance of torsiongraph and tachograph tests; hull vibration and hull vibration testing and machinery alignment.
12. Provide consultation, assistance and general expertise in noise control and abatement.
13. Review plans and specifications prepared by CE field activities.

LIFE CYCLE PROJECT MANAGEMENT

OBJECTIVES

- Undivided Responsibility
- Project Continuity
- Applications of Lessons Learned
- Uniform Procedure
- Accountability For Cost
- Accountability for Schedule
- Accountability for Quality
- Customer Satisfaction

FEATURES

- Organizational Framework
- Progress Tracking System
- Progress Reporting System
- Baseline Project Cost Estimate
- Work Breakdown Structure

BENEFITS

- Strong Project Proponent
- Commitment to Sponsor
- Changes are Managed
- Problems Identified Early

PRIMARY TOOLS

- Network Based Scheduling
- Authoritative Project Managers
- Task Level Cost Accounting
- Resource Management
- Forecasting and Impact Assessment

REPORTING

- Sponsor District
- Sponsor Division
- HQ USACE (CECW)
- Marine Engineering Board

DETAIL DESIGN PHILOSOPHY

FEATURES

- Structural Design
- Major Items of Machinery Selected
- Mechanical and Electrical Systems Designed
- Plans & Specifications Integrated
- Commercial & Industry Standards Used
- No Additional Design Required by Builder
- Minimum Engineering Required by Builder
- Equipment Substitutions Permitted

BENEFITS

- Project Management Strengthened
- Competition Stimulated
- Minimum Bid Contingency
- Contract Management Clarified
- Sponsor Participation Enhanced
- Value Engineering Opportunities Increased
- Funding and Cash Flow Management Improved
- Scheduling Accuracy Improved
- Claim Avoidance is Promoted
- Customer Satisfaction is Improved

*What men want is not
knowledge, but certainty"*

— Bertrand Russell

CONCEPT DEFINITION PHASE

PURPOSE

To generate an unambiguous statement of the design objectives in terms of form and function and then to translate that statement into simple sketches that depict a probable configuration.

SPONSOR INPUT

- Mission Requirements
- Operating Requirements
- Operating Constraints
- Operability Review
- Funding Limitations & Objectives

MDC DELIVERABLES

- Concept Definition Memo
- Concept Sketches
- ROM Cost Estimate
- Recommended Procurement Method
- Determination of Regulatory Body Cognizance

*"We are surrounded by
insurmountable opportunities"*

—Pogo Possum

PRELIMINARY DESIGN PHASE

PURPOSE

To determine the feasibility of the concept and to develop the design only to the level of detail necessitated by the subsequent requirements of the Project Management Plan.

MDC ACTIVITY

- Establish Work Breakdown Menu
- Generate Task Sheets
- Develop Hull Shape
- Establish Subdivision
- Generate Principal Structure & Scantlings
- Develop Power Estimates
- Develop Principal Mechanical Systems
- Carry Out Model Testing
- Carry Out Tradeoff Studies
- Prepare Estimate of Weights & Centers
- Carry Out Stability Studies
- Repeat Iterations of Above Design Activities Until Balanced Design is Achieved

MDC DELIVERABLES

- Preliminary Design Drawings
- General Design Memorandum
- Feature Design Memorandum
- Preliminary Cost Estimates
- Project Management Plan
- Project Milestone Schedule

SPONSOR PARTICIPATION

- Operability Review

*Good Decisions come from wisdom
Wisdom comes from experience
Experience comes from bad decisions*

— Basic Rules of Design

DETAIL DESIGN PHASE

MDC ACTIVITY

- Detail Structure
- Determine Complete Scantlings
- Select Major Items of Machinery
- Develop Mechanical System Details
- Develop Electrical System Details
- Design Heating, Ventilating, and Air Conditioning Systems
- Develop Joiner Details
- Develop Outfitting Requirements
- Develop Paint Schedule
- Refine Weight Estimate
- Refine Stability Study
- Prepare Construction Cost Estimate
- Value Engineering Studies

MDC DELIVERABLES

- Detail Design Plans
- Contract Specifications
- Construction Cost Estimate
- Biddability Review
- Constructability Review

SPONSOR PARTICIPATION

- Operability Review
- Value Engineering Studies

*"...t's a mighty plain
Thut the weakes' place mus stan' the strain;
'N' the way t' fix it, uz I maintain,
Is only jest
T' make that place uz strong uz the rest"*

— "The Deacon's Masterpiece"
Oliver Wendell Holmes

CONSTRUCTION CONTRACT MANAGEMENT

MDC ACTIVITY

- Monitoring Progress
- Quality Assurance Supervision
- Reviewing Builders Plans
- Resolving Technical Issues
- Witnessing Tests
- Administering the Contract
- Accepting the Completed Vessel
- Review of Drawings, Manuals & Software
- Coordination With Regulatory & Classification Bodies

SPONSOR PARTICIPATION

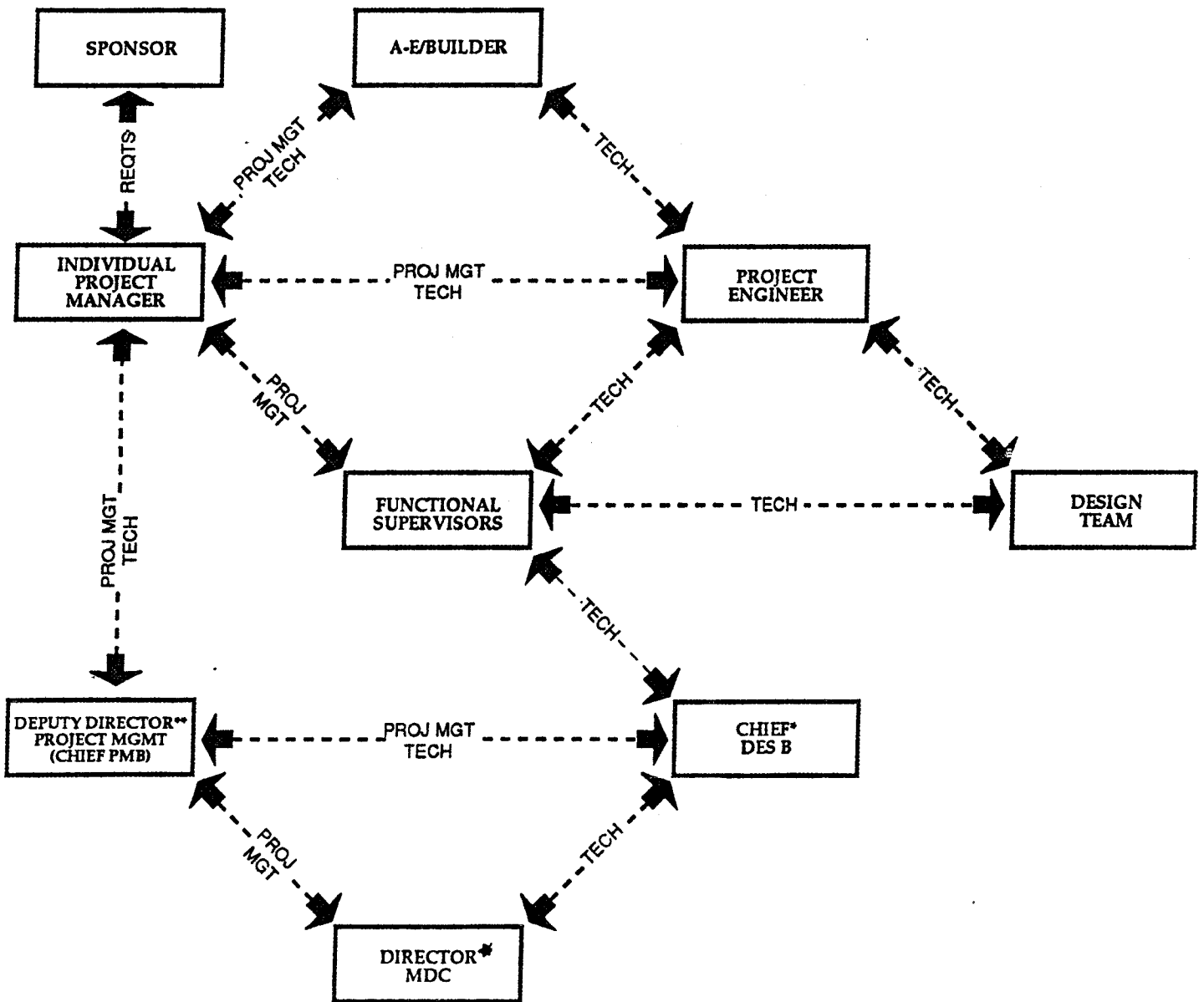
- Operability Review
- Quality Assurance
- Value Engineering
- Funding & Contract Progress Payments
- Witnessing Tests
- Acceptance Inspection

"Any instruction will be interpreted differently each time, no matter how many times it is read, or by whom."

— Abraham Bassin
USACE

PROJECT MANAGEMENT

COORDINATION DIAGRAM



* Project Review Board

** Chairman

October 1988