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	Engineering and Design DEPARTMENT OF THE ARMY FACILITIES STANDARDIZATION PROGRAM	
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DEPARTMENT OF THE ARMY
U.S. Army Corps of Engineers
Washington, DC 20314-1000

CEMP-EA

ER 1110-3-113

Regulation
No. 1110-3-113

27 September 1993

Engineering and Design
DEPARTMENT OF THE ARMY FACILITIES STANDARDIZATION PROGRAM

1. Purpose.

This regulation establishes policies, responsibilities, and procedures for the U.S. Army Corps of Engineers (USACE) to execute the Department of the Army (DA) Facilities Standardization Program.

2. Applicability.

This regulation applies to all Headquarters, U.S. Army Corps of Engineers (HQUSACE) and Office of the Chief of Engineers (OCE) elements, major subordinate commands (MSC), district commands, laboratories, and field operating activities (FOA) having military construction (MILCON) responsibilities.

3. References.

References and additional information resources are listed at Appendix A.

4. General.

a. Description. Army facilities standardization is a formal process for developing requirements and designs for facilities which will be used as DA standards for construction. This process consists of:

(1) Selecting facility types appropriate for standardization.

(2) Developing functional and technical facility requirements based on input from the Army proponent agencies and USACE.

(3) Developing, coordinating, approving, and implementing DA standard design packages based on the Army's requirements.

(4) Using approved DA standard design packages to develop project specific design and construction documents for Army facilities.

(5) Monitoring the use of, seeking feedback, reviewing and updating approved DA standard design packages to ensure their continued technical quality and responsiveness to Army requirements.

b. Definitions. The term "standardization" is often understood to mean complete duplication of a facility's design that is site adapted from site to site. However, standardization of a facility's design may be accomplished through several methods, as allowed by ER 1110-345-710.

(1) Full standard designs include drawings and specifications that are sufficient in detail to serve as construction documents after modifications are made for site-specific requirements.

(2) Definitive designs include drawings and information that delineate space allocations, functional layouts, and the basic configuration of the facility, and serve as guides in developing specific design and construction n drawings.

(3) Design guides normally contain a combination of written and graphic material for a specific facility type, accompanied by several example designs.

(4) DA standard design packages will normally be developed to a level of design that is similar to definitive designs in order to provide the flexibility to meet the varying needs of the Army. The basic DA standard design package includes both standard design drawings and design analysis in accordance with Appendix B.

5. Objectives.

a. Background. The Vice Chief of Staff, Army (VCSA) notified Commanders of the Major Army Commands (MACOM) that distinct benefits accrue to the Army by standardization, including the use of standard facility designs. The VCSA also indicated to the Chief of Engineers (COE) that the Army cannot afford the luxury, nor are there justifiable reasons to design and construct unique facilities for each Army installation, and that the COE should increase the use of standard facility designs in the Army's MILCON programs. The VCSA emphasized that the facilities standardization effort should include the appropriate participation of DA Staff offices, MACOM, and other DA organizations having specific facility proponent responsibilities.

b. Objectives for Facilities Standardization. The overall objective for Army facilities standardization is to achieve savings and benefits in the programming, design, and construction of Army facilities of excellence. Specifically, this objective includes, but is not limited to, the following:

(1) Increased credibility with the Congress through more consistent construction program development.

(2) Increased consistency in facility types with equal treatment among MACOM, installations, and users.

(3) Simplified construction programming activities.

(4) Improved master planning and site development activities, improved design quality, and the promotion of design excellence.

(5) Simplified design and construction project management, reduced design costs and time, reduced construction costs and time, and reduced change orders during construction.

(6) Increased customer satisfaction through improved responsiveness to the user's functional and operational requirements.

c. Army-wide vs Geographical Approach.

(1) Uniformity of standard designs Army-wide is the desirable goal and should be achieved wherever possible. However, certain factors may preclude the achievement of this goal in some cases, such as the following:

(a) Operational requirements may vary between CONUS and OCONUS military units.

(b) Construction materials and methods as well as construction labor markets vary between CONUS and OCONUS geographical areas and regions. The International Balance of Payments Act may influence material, components and systems selections.

(c) Host Nation building codes, construction regulations, and construction practices in OCONUS locations vary from CONUS building codes, regulations, and practices.

(2) Where an Army-wide standard design is not possible because of the factors listed above, then a geographical approach may be adopted in the development of the DA standard design package. The geographic areas will be CONUS (including Alaska and Hawaii); Europe; and the Far East. Regions within each geographic area may also be designated, as appropriate, when operational, design, and construction requirements vary within the geographical area. Each DA standard design package will be used throughout the geographical area or region for which it has been developed.

(3) In each case when an Army-wide standard design is developed, the DA standard design package will still be required to be adapted by each geographical area through the development of geographical designs which embody the functional characteristics of the DA standard design while integrating the design and construction requirements imposed by various Host Nation governments.

6. Organizational Structure.

a. DA Facilities Standardization Committee. As defined by AR 415-15. the DA Facilities Standardization Committee consists of one voting General Officer who is supported by one non-voting

point of contact from each DA Staff office and MACOM with facility proponent responsibility.

(1) DA Staff representation includes, but is not necessarily limited to, the following: Office of the Chief of Staff (DACS), Office of the Chief, Army Reserves (DAAR), Office of the Chief of Chaplains (DACH), Office of the Deputy Chief of Staff for Logistics (DALO), Office of the Deputy Chief of Staff for Intelligence (DAMI), Office of the Deputy Chief of Staff for Personnel (DAPE), Office of the Deputy Chief of Staff for Operations and Plans (DAMO), and the Office of the Surgeon General (DASG).

(2) MACOM representation includes, but is not necessarily limited to, the following: U.S. Army Europe and Seventh Army (USAREUR), Forces Command (FORSCOM), Military Traffic Management Command (MTMC), U.S. Army Criminal Investigation Command (USACIDC), U.S. Army Health Services Command (HSC), U.S. Army Information Systems Command (USAISC), Intelligence and Security Command (INSCOM), U.S. Army Materiel Command (AMC), U.S. Army Military District of Washington (MDW), U.S. Army South (USARSO), U.S. Army Training and Doctrine Command (TRADOC), U.S. Army Pacific (USAPAC), U.S. Forces Korea/Eighth U.S. Army (USFK/EUSA), and the U.S. Army Special Operations Command (USASOC).

(3) The DA Facilities Standardization Committee is chaired by the Director of Military Programs, HQUSACE.

(4) The POC on the DA Facilities Standardization Committee should be familiar with the programming and operational requirements of Army facilities. For this reason, the POC from a DA Staff office will normally be the same person who represents that office on the Construction Requirements Review Committee (CRRC). Each POC may be supported by programming, planning, and technical resources from their respective DA Staff office or MACOM, or any other Army functional or operational expert as required.

b. Subcommittees for Specific Facility Types. One world-wide Subcommittee will be established for each facility type or group of facility types to be standardized. Specific working teams may be established as necessary within each Subcommittee to address specific elements, or geographical and regional variations, of the facility type.

(1) The composition of each Subcommittee will depend on the facility type to be standardized. As a minimum, each Subcommittee will consist of representatives from the DA Staff office and MACOM having facility proponent responsibility. In addition, members may represent subordinate commands, Army installations or user organizations, and other activities involved with the type of facility. The DA Facilities Standardization Committee members will designate representatives for membership on each Subcommittee, as appropriate. For the purpose of decision making, the Subcommittees will be chaired by representatives from the DA Staff offices or MACOM that are the proponents for the facility types, or by Army functional and operational experts designated by the DA Staff or MACOM.

(2) Each facility type Subcommittee will be supported both administratively and technically by a Center of Standardization (COS) which is a USACE operating MSC or district assigned to develop specific DA standard design packages and accomplish other functions of a COS in accordance with ER 1110-3-109. In most cases, the COS will be the only USACE organization that is actively involved with the facility type subcommittees. Exceptions to this include HQUSACE participation and where a USACE organization has been designated as the facility type proponent.

c. USACE Facilities Standardization Committee. As defined by ER 15-1-25, the USACE Committee will consist of one representative from each of the engineering divisions/directorates of the USACE MSC having MILCON responsibilities, i.e., Huntsville (CEHND), Missouri River (CEMRD), North Atlantic (CENAD), North Pacific (CENPD), Ohio River (CEORD), Pacific Ocean (CEPOD), South Atlantic (CESAD), South Pacific (CESPD), Southwestern (CESWD), and Transatlantic (CETAD).

7. <u>Responsibilities and Activities</u>.

a. DA Facilities Standardization Committee.

In accordance with AR 415-15, the primary responsibilities of the DA Facilities Standardization Committee are to provide DA level unity to the facilities standardization process, and to recommend policy and provide advice for the facilities standardization activities. Specifically, these responsibilities and activities include:

(1) Define the objectives, and recommend the directions, for facilities standardization efforts which reflect current Congressional, Department of Defense (DoD), and DA issues.

(2) Recommend to the COE candidate facility types for standardization.

(3) Recommend appropriate adjudication of issues arising out of the development of standard requirements and designs.

(4) Recommend approval by the COE of DA standard design packages for Army-wide or geographical use.

(5) Recommend the mandatory use and implementation of approved DA standard design packages by the COE under the authority of the VCSA. Once recommended for approval by the DA Facilities Standardization Committee and approved by the COE, a standard design will become mandatory for use as a DA standard design package, either Army-wide or within a designated geographic area or region.

(6) Recommend approval or disapproval by the COE of requests for variances or waivers from functional or operational elements of approved DA standard design packages.

(7) Provide recommended policy and guidance for updating of approved DA standard design packages.

(8) Meet as required and be available on an as necessary basis to address ongoing issues such as requests for variances or waivers of approved DA standard design packages and the updating of existing DA standard design packages.

b. Subcommittees for Specific Facility Types. The primary responsibilities of each Subcommittee are to develop the functional and operational requirements and to coordinate with the supporting COS in the development of the proposed DA standard design package for the selected facility type. Specifically, these responsibilities and activities include:

(1) Provide the proponent and user perspective in the development of the proposed DA standard design package. Establish specific working teams as required.

(2) Identify the appropriate sources of input for the development of the functional and operational requirements for the facility type, e.g., appropriate Army installations or user organizations, Army functional and operational experts, or other activities involved with the type of facility. Obtain and coordinate the input from the identified sources, and ensure that comments from these sources are fully considered during the development of the proposed DA standard design package.

(3) Develop and document the functional and operational requirements for the facility type, consistent with the guidance provided by the DA Facilities Standardization Committee.

(4) Provide the functional and operational requirements for the facility type to the supporting COS selected to develop the standard design. Coordinate with the supporting COS on the appropriate level of standardization and geographical application of the proposed DA standard design package for consistency with the guidance provided by the DA Facilities Standardization Committee.

(5) Identify those elements of the DA standard design package that are mandatory and those elements that are optional, and ensure the final DA standard design package clearly reflects these mandatory and optional elements.

(6) Monitor the development of the proposed DA standard design package. Review the proposed DA standard design package and, upon acceptance by a consensus of the Subcommittee, submit the design to the DA Facilities Standardization Committee for consideration.

(7) Monitor and evaluate the approved DA standard design package for responsiveness to Army functional and operational requirements.

(8) Appoint a member of the Subcommittee to serve as the point of contact concerning waiver actions.

(9) Develop recommendations for updating, revising, or redeveloping the approved DA standard design package when appropriate. Transmit the recommendations to the DA Facilities Standardization Committee for consideration.

c. USACE Facilities Standardization Committee. In accordance with ER 15-1-25, the primary responsibilities of the USACE Committee are to coordinate among USACE elements and ensure that they participate in the development and the use of DA standard design packages. Specific responsibilities and activities of the USACE Committee are defined in ER 15-1 -25.

d. Centers of Standardization (COS). The primary responsibilities of the supporting COS are to provide administrative and technical support to the Subcommittee for the specific facility type, develop the DA standard design package for each assigned facility type, track and monitor the use of the standard, evaluate the standard for technical adequacy and responsiveness to user requirements, and provide technical support on an as needed basis to other USACE design agencies. Current COS assignments, by facility type, are provided in ER 1110-3-109. Specific responsibilities and activities, in addition to the mission and those functions of a COS described in ER 1110-3-109, include:

(1) Coordinate with the Subcommittee for the selected facility type and, if appropriate, provide design and engineering input to the development of the functional and operational requirements.

(2) Develop a schedule and arrange for meetings of the Subcommittee for the specific facility type, coordinate with other Subcommittees. and prepare and publish minutes of all meetings within ten days after the meeting date. All proposed meeting dates and places must be coordinated with HQUSACE (CEMP-EA) to allow the consolidation of meetings with other Subcommittees to ensure that travel times and costs are minimized.

(3) Develop a proposed standard design or designs for the facility type. Coordinate the development of the proposed standard design with the Subcommittee for the facility type. Ensure that all proponent and user comments are fully considered and documented during the development of the proposed DA standard design package. Development of the DA standard design package may be accomplished by either in-house USACE personnel or by Architect-Engineer (AE) contract.

(4) Transmit the proposed DA standard design package for coordination with the USACE Committee, HQUSACE (CEMP-E), and other COS. Incorporate the technical input from these sources into the proposed DA standard design package.

(5) Monitor and evaluate the DA standard design package for constructibility and technical performance. Document and transmit the evaluation to HQUSACE (CEMP-EA).

e. HQUSACE Facilities Standardization Activity. A facilities standardization activity will be maintained within HQUSACE, Directorate of Military Programs. This activity will coordinate with the DA Facilities Standardization Committee, the USACE Committee, the Subcommittees for the various facility types, and the COS in the development and maintenance of DA standard design packages. Additionally, this activity will be responsible for keeping other interested DA elements informed about the program, such as the Office of the Deputy Assistant Secretary of the Army for installations and Housing, and the Construction Requirements Review Committee (CRRC). The responsible office is HQUSACE (CEMP-EA).

8. Facility Types for Standardization.

a. Selecting Facility Types for Standardization. The selection of a facility type for standardization can be based on many factors. These factors include, but are not limited to:

(1) Congressional, DoD or DA policy requires or suggests standardization or uniformity of all designs of a facility type.

(2) The number of projects programmed for a specific facility type in the various MILCON programs (i.e., MCA, NAF, AFH, etc.) suggests that standardization would result in saved design costs and time.

(3) The similarity of functional and operational requirements among various facilities of a specific type lend themselves to standardization.

(4) The design characteristics of a specific facility type, i.e., the complexity of the design, the potential for modularity or repetition of elements in the design, and the potential for the design to adapt to varying requirements such as scope, building engineering, or architectural themes lend themselves to standardization.

(5) The availability of an existing design that is already accepted and widely used as a standard design in a given geographical area, by a MACOM, or by the Army in general suggests that the design would be a benefit Army-wide.

b. Recommending Facility Types For Standardization.

(1) Any DA Staff element, MACOM, USACE element, or other DA element may select and recommend candidate facility types for standardization. All recommendations should be submitted to HQUSACE (CEMP-EA) for consideration.

(2) Once a recommendation has been received, HQUSACE (CEMP-EA) will arrange for the establishment of a Subcommittee and the selection of a COS for the recommended facility type. As a minimum, the Subcommittee will meet to determine whether or not standardization is appropriate, and report their findings to HQUSACE (CEMP-EA) who, in turn, will inform other elements involved in the program and, if appropriate, program necessary funds for the development of a DA standard design package for the recommended facility type.

9. DA Standard Design Package Development.

Procedures for developing DA standard design packages are contained in Appendix C.

10. DA Standard Design Package Implementation/Use.

a. Authority. When recommended by the DA Facilities Standardization Committee and authorized by the COE, a DA standard design package will become mandatory for the selected facility type, and will be used Army-wide within the intended geographic area for planning, programming, design and construction activities. In the case of category code 500 medical facilities, the implementation of an approved DA standard design package will be coordinated with the Office of the Assistant Secretary of Defense for Health Affairs.

b. Procedures for Using a DA Standard Design Package.

(1) Installations, or USACE MSC under QUICKSTART procedures, will use appropriate DA standard design packages during a project's planning and programming phases for a facility type for which a DA standard design package has been implemented. The MACOM, and USACE MSC under QUICKSTART should ensure that installations use and reference appropriate DA standard design packages in DD Forms 1391 and all other necessary programming documentation.

(2) Upon receipt of a design directive from HQUSACE for a facility for which a DA standard design package has been implemented, the USACE district administering the project will obtain the appropriate DA standard design documentation. As with other types of standard designs, copies of approved DA standard design packages are available from the U.S. Army Engineer Division, Huntsville (CEHND) in accordance with EP 1110-345-2. Execution of the design for an individual facility will follow conventional design procedures. with these special instructions added:

(a) Selection of an AE contractor must consider previous experience with the applicable DA

standard design package, or in-house design staff should be used.

(b) In addition to building related interior design, furniture related interior design should be provided in accordance with ER 1110-345-122.

(c) Computer Aided Design and Drafting (CADD) shall be used in accordance with EM 1110-1 -1807 standards. A copy of the final design CADD tape(s) will be provided to the appropriate COS along with a set of all final design documents (drawings, specifications, bid documents, and design analyses).

(3) The USACE district administering the project design, to the extent allowed by the DA standard design package, will tailor the design to the specific requirements of the project. This may include adapting the DA standard design for the appropriate size or scope as programmed on the DA Form 1391, integrating the design and construction requirements imposed by various Host Nation governments, site design and engineering, and selecting the appropriate options allowed in the DA standard design package to address local conditions. Such options may include structural and environmental design, and the architectural theme. Depending on the level of standardization represented in the DA standard design package, building engineering, material selections, architectural treatment, and other project specific features may also have to be addressed. If the USACE district administering the project design requires any clarifications or assistance concerning the DA standard design package, the supporting COS for that DA standard design package, as listed in ER 1110-3-109, should be contacted.

(4) Once the DA standard design package has been used for an individual facility at a given installation, that design (design and construction documentation) will become the standard design drawings for all subsequent applications of the same facility type at that Army installation. Subsequent uses of the standard design drawings will be site adaptations, requiring only modifications for scope and size, and site design and engineering. Revisions approved and implemented for the basic DA standard design package. may be incorporated into these installation standard design drawings, as appropriate at that particular Army installation.

c. Waiver From the Use of a DA Standard Design Package. There may be circumstances where the use of a DA standard design package could be inappropriate for an individual facility. In such cases, a request for waiving the use of the DA standard design package will be submitted to the HQUSACE Facilities Standardization Activity (CEMP-EA) for review. The installation is responsible to prepare this submittal such that it clearly documents the rationale for the waiver request and to submit the request through the MACOM for which the facility is programmed. In the case of category code 500 medical facilities, the Office of the Surgeon General serves as the MACOM in accordance with AR 415-15.

(1) A request for waiver will follow a standard format. The initiator of the request will identify the following:

(a) The functional and operational requirements of the facility for which the DA standard design package is not or cannot be made responsive.

(b) The required feature(s) of the DA standard design package that is (are) nonresponsive to each of the identified facility requirements.

(c) A description of the incompatibility between each of the identified facility requirements and the affected required feature(s) of the DA standard design package.

(d) The estimated construction cost impact of the waiver.

(2) The HQUSACE Facilities Standardization Activity (CEMP-EA) may seek input from the members of the Subcommittee for the facility type, the USACE Committee, the supporting COS for the facility type, the USACE district or MSC designing the actual project, or the users of the individual facility. As a minimum, the waiver request must be coordinated with the HQDA proponent for the facility type. Upon review of the request and coordination with the HQDA proponent, the HQUSACE Facilities Standardization Activity will recommend approval or disapproval to the Chairperson or the DA Facilities Standardization Committee. The Chairperson may seek additional input from the DA Facilities Standardization

Committee, if necessary, prior to recommending approval or disapproval to the COE. The COE will make the final decision concerning the waiver request.

d. Modification or Waiver of a Mandatory Element of a DA Standard Design Package. Prior to entering into the waiver procedure for a mandatory or required element of an approved DA standard design package, the installation, MACOM, or the USACE district executing the project design should contact the appropriate supporting COS to determine why the element was identified as mandatory. In some cases, this explanation may preclude the installation or MACOM from wanting the waiver. However, in those circumstances where certain mandatory or required elements of a DA standard design package may be inappropriate for an individual facility, the following procedure will be used.

(1) The installation is responsible for initiating a request for a waiver of a mandatory element. The request must be made through the MACOM responsible for programming the project, and not through USACE channels. In the case of category code 500 medical facilities, the Office of the Surgeon General serves as the MACOM in accordance with AR 415-15. If the MACOM concurs with the request, the request should be forwarded to the HQUSACE Facilities Standardization Activity (CEMP-EA).

(2) The HQUSACE Facilities Standardization Activity (CEMP-EA) will coordinate the request with the HQDA proponent for the facility type and with HQUSACE (CEMP-MA) to determine the functional, operational, scheduling or cost impacts to the project. Input may be requested from other members of the Subcommittee for the facility type, the USACE Committee, the supporting COS for the facility type, or the USACE district or MSC designing the actual project. If HQUSACE and the HQDA proponent for the facility type agree with the MACOM in waiving the mandatory or required element, the HQUSACE Facilities Standardization Activity will notify the MACOM and USACE activities involved with the project that a waiver has been allowed.

(3) In those cases were all parties cannot agree, the individual recommendations of the MACOM, the HQDA proponent for the facility type, and the HQUSACE Facilities Standardization Activity (to include the recommendations of CEMP-MA if there are adverse impacts on the projects schedule or cost) will be submitted in writing to the Chairperson of the DA Facilities Standardization Committee or his designated representative for resolution.

(4) If the Chairperson of the DA Facilities Standardization Committee cannot resolve the issue, the DA Facilities Standardization Committee will be requested to provide a recommended solution. The COE will have final authority to resolve the issue based on the recommendation of the DA Facilities Standardization Committee.

11. Updating DA Standard Design Packages.

a. General. Approved DA standard design packages will be monitored and evaluated for responsiveness to user requirements and for technical adequacy. Revisions will be made when they are determined appropriate by ongoing review and evaluation.

b. Procedures for Reviews and Revisions.

(1) The Subcommittee for each facility type will be responsible for evaluating the responsiveness of the DA standard design package to the user's functional and operational requirements. The Subcommittee will monitor facilities built using the DA standard design package, evaluate their responsiveness and document the findings.

(2) The supporting COS for each facility type will be responsible for evaluating the technical performance of the DA standard design package. The supporting COS will monitor facilities built based on the approved DA standard design package (during construction and post-construction) for constructibility, engineering and technical sufficiency, life cycle cost performance, lessons-learned, technical feedback, and compliance with current design standards and construction criteria. The supporting COS will document the evaluation.

(3) HQUSACE (CEMP-EA) will ensure that facilities based on approved DA standard design packages are scheduled for DA Standard Design

Evaluation Team Visits and/or Design Criteria Feedback Inspections (DCFI) as defined by ER 415-3-11. When directed by HQUSACE, the supporting COS will participate as an official member on these visits and inspections.

(4) The Subcommittee and the supporting COS for each facility type will coordinate their reviews and evaluations on an ongoing basis. As a minimum, the Subcommittee and the COS will meet once a year and provide a summary of their actions to the Chairperson of the DA Facilities Standardization Committee (HQUSACE, ATTN: CEMP-EA). The Subcommittee and the supporting COS may revise the DA standard design package when required. Where the Subcommittee and the supporting COS determine that more substantive modifications to the approved DA standard design package are appropriate, the Subcommittee should transmit a recommendation to the Chairperson of the DA Facilities Standardization Committee. The Chairperson of the DA Facilities Standardization Committee will review such recommendations and provide the appropriate guidance to the COE for final approval or disapproval.

FOR THE COMMANDER:

WILLIAM D. BROWN
Colonel, Corps of Engineers
Chief of Staff

3 Appendices
APP A - References
APP B - DA Standard Design Package
APP C - DA Standard Design Package Development

APPENDIX A

REFERENCES

1. Public Laws and Executive Orders.

a. Metric Conversion Act of 1975 (Public Law 94-168) as amended by the Omnibus Trade and Competitiveness Act of 1988 (Public Law 100-418).

b. Executive Order 12770, dated July 25, 1991, Metric Usage In Federal Government Programs.

2. Department of the Army.

a. AR 415-15, Military Construction, Army (MCA) Program Development.

b. AR 415-17, Cost Estimating for Military Programming.

3. U.S. Army Corps Of Engineers.

a. ER 15-1-25, USACE Facilities Standardization Committee.

b. ER 415-3-11, Post Completion and Design Criteria Feedback Inspections.

c. ER 1110-3-109, Corps-Wide Centers of Expertise Assigned to Divisions and Districts.

d. ER 1110-345-100, Design Policy for Military Construction.

e. ER 1110-345-122, Interior Design.

f. ER 1110-345-700, Design Analyses.

g. ER 1110-345-710, Drawings.

h. EM 1110-1-1807, Standards Manual for U.S. Army Corps of Engineers Computer-Aided Design and Drafting (CADD) Systems.

i. EP 1110-345-2, Index of Design Drawings for Military Construction.

j. Architectural and Engineering Instructions (AEI), Design Criteria issued by HQUSACE (CEMP-EA). Additional copies are available from HQUSACE (CEMP-EA), 20 Massachusetts Ave., N.W., Washington, DC 20314-1000.

APPENDIX B

DA STANDARD DESIGN PACKAGE

1. General.

a. The basic DA standard design package will be developed on size Al (594 mm by 841 mm) sheets and include all necessary design drawings and design analysis. All drawings and text will be developed at a scale and size to be legible when reduced to an A3 (297 mm by 420 mm) sheet size.

b. In accordance with the Metric Conversion Act of 1975 (Public Law 94-168) as amended by the Omnibus Trade and Competitiveness Act of 1988 (Public Law 100-418), and Executive Order (EO) 12770 dated July 25, 1991, DA standard design packages shall be developed using the metric (SI) system of measurement.

(1) All dimensions on drawings should be in millimeter (mm), unless otherwise noted. The primary design module should be in SI, e.g., 100 mm (in lieu of 4 inches), 1200 mm (in lieu of 4 feet), and 400 mm on center (in lieu of 16 inches on center).

(2) All design analysis and narrative information should be in dual units of measurement, with the Si as the primary unit followed by inch-pound (IP) units in parentheses, e.g., 14 m^2 (150 SF), 20 MPa (3000 psi), and 430 lx (40 footcandles).

c. All DA standard design packages shall be developed using a Computer-Aided Design and Drafting (CADD) system compatible with the CADD standards contained in EM 1110-1-1807.

2. DA Standard Design Drawings.

The DA standard design drawings will be developed to delineate functional layouts, space allocations, special features or requirements, and the configuration of the facility elements both horizontally and vertically. DA standard design drawings will indicate the basic recommended building systems; materials; structural, mechanical and electrical systems; architectural treatment; and illustrate the mandatory features and optional features of the design. DA standard design drawings will include, but not be limited to:

a. Site plan(s) indicating a typical layout on an idealized fiat site, including any recommended or required support buildings, walks, parking, site access, roads, service areas, lighting, etc.

b. Floor plans with the principal dimensions noted, including all walls, fenestration, partitions, doors, door swings, stairs, elevators, special equipment or fixtures, and with all rooms and spaces properly titled or identified to indicate the functional activity of the room or space.

c. Elevations with the principal dimensions noted and indicating the basic building exterior appearance, including recommended and optional architectural treatment and materials; height, length, and width of the building; entry; fenestration; roof line; etc.

d. Typical cross section(s) through the building(s) with story heights dimensioned, and indicating recommended or required elements of the building systems; materials; structural, mechanical and electrical systems; architectural treatment; etc.

e. Birds-eye perspective or typical ground level perspective based on a suggested architectural theme, but indicating that local architectural themes are applicable.

3. DA Standard Design Analysis.

The DA standard design analysis will be prepared as part of, and in support of, the DA standard design drawings and serve as a guide to USAGE design agencies and AE firms applying the DA standard design package to a specific project. ER 1110-346-700 may be used as a guide during the development of the design analysis. However, since ER 1110-345-700 is applicable to actual

MCA projects, it must be tailored for application at the DA standard design or definitive design level. All areas of the DA standard design analysis must clearly state what elements of the design(s) are mandatory and what elements are optional. As a minimum, the DA standard design analysis should include the following:

a. A general description of the design(s) included in the package. This description should include information concerning the applicability of the design(s) and qualifications regarding the use of the design(s), such as the mandatory and optional features of the design(s), geographical applications and differences, authorized modifications, and adaptability to varying requirements among individual projects.

b. A narrative description of the functional and operational requirements that were met during the development of the design(s), including the range and number of personnel that can be accommodated, the types of equipment and operations that can be accommodated, the military or community population that can be served, and the overall functional objective of the design.

c. A narrative description of the requirements of the site, including boundaries, total hectare (acreage), pedestrian and vehicular access, functional relationships to other facility types, support buildings, parking, service areas, orientation of elements to conserve energy, sound control, handicapped accessibility, signage, physical security/anti-terrorism, lighting, etc.

d. A narrative description of the architectural design objectives and elements of the design(s), including gross building area, an area tabulation of rooms or other spaces on the floor plans, desired image or visual appearance of interior elements and the exterior, furniture and furnishings, contractor and government furnished equipment, recommended theme for the interior design covering building related interior design and customer funded interior furnishings (ER 1110-345-122), signage, occupational safety and health considerations, provisions for handicapped accessibility, physical security/ anti-terrorism, recommended or required finish materials, acoustical design considerations, type of occupancy, occupant loads, firs safety and protection, etc.

e. A narrative description of the design objectives and provisions of the recommended structural system, including materials, design loads, seismic protection, fallout protection, basis for the system selected, recommended foundation system, etc.

f. A narrative description of the recommended mechanical systems, including plumbing and HVAC, design temperatures, design loads, energy conservation, toilet and other fixture allocations, basis for the systems selected, etc.

g. A narrative description of the electrical system,including loads and load factors, specialized equipment, emergency lighting and stand-by generation, special current/voltage requirements, illumination levels, information systems and communication requirements, energy conservation and monitoring, etc.

h. A preconcept level cost estimate, using MCACES, based on the USACE standard building system work breakdown system. A separate estimate is required for all of the various options of the design(s).

3. Optional DA Standard Design Brochure.

A DA standard design brochure may be developed as an information document for the prospective programmers and users of the facility type for which the DA standard design applies. The specific requirements for the brochure should be established at the predesign conference by the subcommittee responsible for the facility type being standardized. The basic requirement is that the brochure be developed on a 216 mm by 279 mm (8 1/2-inch by 11-inch) vertical format and include, but not be limited to:

a. Drawings of the site plans, floor plans, elevations, sections, and perspectives with corresponding extracts from the design analysis that describe and graphically communicate the character and scope of the facility.

b. A narrative text that indicates where the functional areas, building features, and materials of

the design are mandatory and where they are optional or where changes can be made at the user's request.

c. A narrative text that stresses the importance of an architectural theme in the development of a design using the definitive design.

APPENDIX C

DA STANDARD DESIGN PACKAGE DEVELOPMENT

1. Design Approach.

Once a USACE district or operating MSC has been directed by HQUSACE (CEMP-EA) to be a supporting COS to develop a DA standard design package, that COS will be the primary influence in the execution of the DA standard design package. The selection of a COS will be based on expertise or previous experience with the facility type and capabilities in performing the task. Development of the DA standard design(s) for the facility type being standardized will be accomplished in a similar fashion as the development of a conventional project design. A concentrated team effort among all disciplines will be undertaken during design development to arrive at the most cost effective and energy efficient design possible which meets the functional and operational requirements of the facility type. This team effort must begin at the inception of the development to achieve a comprehensive and coordinated design. Disciplines comprising the team must include, but not be restricted to, architectural, mechanical, electrical, civil, structural, fire protection, and site planning.

a. A DA standard design package may be developed in one of three methods as follows:

(1) By developing a new design specifically as a DA standard design for the facility type. This may be done by either in-house USACE personnel or by AE contract.

(2) By developing a new design for an individual facility as a "pilot" DA standard design. Upon completion of the individual facility design, the design will be further developed into a DA standard design package.

(3) By adapting an existing project design for an individual facility as a pilot' DA standard design. Upon completion of the individual facility design, the design will be further developed into a DA standard design package.

b. If a prior design method is used, or if a previously constructed existing design is used, feedback gathered from construction and occupancy experiences with the "pilot" design or existing design will be incorporated into the DA standard design package concurrent with the review and input from the Subcommittee for the facility type being standardized and the other USACE design agencies. Therefore, the final DA standard design package will reflect experience from an actual project in such areas as constructibility, occurrence of change orders, construction costs and time, material usage, maintenance and repair, and occupant responses.

2. Coordination.

Coordination for functional adequacy and technical review during the development of a DA standard design package will be accomplished by the supporting COS as follows:

a. Establishment of functional and operational requirements will be coordinated with the Subcommittee for the facility type being standardized. HQUSACE (CEMP-EA) will assist the COS in making initial contact with the appropriate subcommittee.

b. Coordination with the Subcommittee for the facility type being standardized is required during ail phases of the development. This coordination is required to ensure that all functional and operational requirements of the facility type are being addressed. Review times and procedures will be established at the outset of the design effort, however, a minimum review time of 30 days (excluding mailing time) is required at each phase of design. Reviews should normally follow the conventional Military Construction, Army (MCA) phases of concept, prefinal, and final design.

c. Coordination with the USACE Committee is required at each major phase of development, i.e., concept, prefinal, and final design to ensure applicability and constructibility of the DA standard

design package throughout the intended geographical area, i.e., CONUS, Europe, and the Far East, and to ensure that all architectural, engineering, and technical aspects of the design are appropriate.

d. Coordination of the final design is required with all DA Facilities Standardization Committee POCs. This coordination is required to ensure that all voting members of the DA Facilities Standardization Committee are informed. The minimum time required for this final cordination is 60 days (excluding mailing time) so as to allow appropriate time for various DA elements to reach a command position concerning the designs.

3, Functional and Operational Requirements.

The subcommittee for the facility type being standardized will be the primary influence in developing the world-wide functional and operational requirements for the facility type. However, the COS will be required to ensure that all appropriate requirements are identified and, as necessary, provide design and engineering input to the development of the functional and operational requirements. Functional and operational requirements will include, but not be limited to:

a. The programmed locations of the facilities and the applicable geographical area(s) for which the DA standard design package must be developed.

b. The world-wide functional and operational activities, personnel, and associated equipment requirements of the facility and any special requirements applicable to specific geographical areas.

c. Space and area requirements and their functional relationships, including different scopes of the same facility type that may be required.

d. Site and building arrangement requirements.

e. Interior design requirements including building related interior design and customer funded interior furnishings.

f. Architectural and aesthetic considerations for various anticipated locations.

g. Physical and electronic security, and anti-terrorism considerations.

h. information systems and communications requirements.

i. The anticipated variations in functional and operational requirements among individual facilities or geographical areas.

j. Maintenance considerations.

k. Special safety considerations.

4. Initial Design Approval.

Initial approval of the DA standard design package must be obtained from the Subcommittee for the facility type being standardized and the USACE Committee.

a. The Subcommittee for the facility type being standardized must approve the DA standard design package from a world-wide functional and operational perspective. Upon completion and acceptance by the Subcommittee for the facility type being standardized, the supporting COS will distribute the proposed DA standard design package to other USACE elements world-wide, or within the geographical areas for which the DA standard design package applies. The other USACE elements will provide input regarding the suitability of the proposed DA standard design package to local conditions such as climate and environmental requirements, architectural themes, availability of materials, and construction practices. CETAD and CEPOD will also address the suitability of the designs to meet unique Host Nation design and construction requirements. The supporting COS will incorporate the technical input furnished by other USACE elements into the proposed DA standard design package.

b. The USACE Committee approval of the DA standard design package will be based on the fact that the design is appropriate world-wide, or for the intended geographical area, or areas, from an architectural, engineering, and technical perspective.

c. Upon completion and acceptance by the Subcommittee for the facility type being

standardized and the USACE Committee, the Subcommittee for the facility type will submit the proposed DA standard design package to the DA Facilities Standardization Committee for consideration as an approved DA standard design package. This submittal will be made to HQUSACE (CEMP-EA) and include:

(1) DA standard design documents, including supporting analyses, that address world-wide standardization of the specific facility type, i.e., either world-wide DA standard design(s) or DA standard designs for each geographical area, unless there is a geographical area where that facility type does not apply.

(2) Qualifications regarding the use of the DA standard design package, such as which designs apply to each geographical area and a justification for any differences between geographical areas, required or mandatory features of the design(s), optional features or authorized modifications of the designs, the estimated square footage construction cost for the design(s), and adaptability to varying requirements among individual facilities.

(3) Considerations for implementing the DA standard design package, such as time and locations for implementation, anticipated useful life of the package, and provisions for review and revision.

(4) Any unique provisions for variances or waivers of the DA standard design package that are not addressed by this regulation.

(5) The Subcommittee will also prepare and submit a standardization ballot to be voted on by the DA Facilities Standardization Committee. The format for this ballot will be as follows.

(a) Documents. A listing of the actual drawings and other documents to be voted on.

(b) Overview. A summary of the DA standard design(s) to include such items as the level of participation on the Subcommittee, the COS, in what geographical area(s) the design(s) apply, an estimated square footage construction cost for the designs, required features of the design(s), optional features of the design(s), etc.

(c) Recommendation. The actual proposed recommendation to be voted on by the DA Facilities Standardization Committee, including the recommended fiscal year of implementation, the geographical area(s) that the design(s) apply to, and any unique provisions for variances or waivers that are not addressed by these standard operating procedures.

(d) Attachments. The following information will be attached to the standardization ballot. A list of any on going actions of the Subcommittee, including future additions or revisions to the designs. A list of the unique geographical differences, if any, and the justification for each difference (the cost for each difference should also be included). A listing of each member of the Subcommittee and whether that member concurred or nonconcurred with the actual proposed recommendation (all nonconcurrences require a written rationale and an alternate proposal from the nonconcurring member).

5. Final Design Approval.

The DA Facilities Standardization Committee will recommend approval or disapproval of the proposed DA standard design package to the COE. This recommendation will be based on the recommendations of the Subcommittee for the facility type being standardized and the USACE Committee. The final approval of the DA standard design package will be made by the COE. Once approved by the COE, the use of the DA standard design package will be mandatory for the specific facility type in the intended geographical area(s) for projects in the MILCON programs.

6. Adjudication of Nonconcurrences.

Nonconcurrences may arise among the different participants involved in developing DA standard facility requirements and designs. Where these cannot be resolved by the Subcommittee for the facility type being standardized and progress is at an impasse, the following adjudication procedures will be followed.

a. The Subcommittee for the facility type being standardized will be responsible for transmitting a request for adjudication to the Chairperson of the

DA Facilities Standardization Committee. This request must include a listing of each member of the Subcommittee and what his or her position is.

b. If possible, the Chairperson of the DA Facilities Standardization Committee will adjudicate the issue based on the recommendation of the DA Staff element responsible for that facility type, e.g., DALO for tactical vehicle maintenance facilities, the DAPE for unaccompanied enlisted personnel housing, or the DACH for religious facilities.

c. If the Chairperson of the DA Facilities Standardization Committee cannot adjudicate the issue, the DA Facilities Standardization Committee will be requested to provide a recommendation for adjudication. The COE will have final authority to adjudicate the issue based on the recommendation of the DA Facilities Standardization Committee.