PREPARATION AND REVIEW OF DD FORM 1391

CONSTRUCTION ENGINEERING RESEARCH LABORATORY (ARMY)

JUNE 1976

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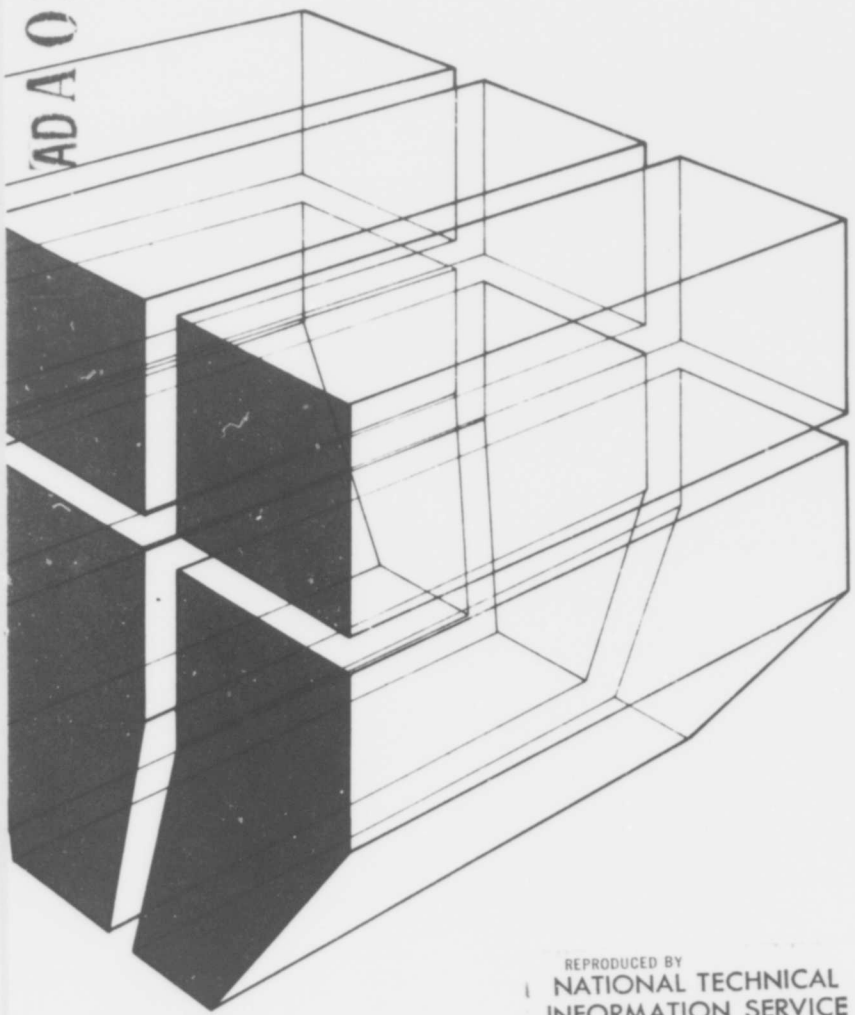
engineering
research
laboratory

TECHNICAL REPORT P-69
June 1976
Checking DD 1391 Submittals

PREPARATION AND REVIEW OF DD FORM 1391



by
Ovadia E. Lev
William H. Stellhorn

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DD Form 1391
Military Construction Project Data Sheet
computer-assisted processing

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

This report details procedures for the preparation and review of DD Form 1391, along with the required data sources and their formats. On the basis of this analysis, recommendations for computer-assisted processing of the form are presented.

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DD FORM 1 JAN 73 1473 EDITION OF 1 NOV 65 IS OBSOLETE

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FOREWORD

This work was performed for the Directorate of Military Construction, Office of the Chief of Engineers (OCE), under Project 4A762719AT41, "Design, Construction and Operations and Maintenance Technology for Military Facilities," Technical Area T1, "Development of Automated Procedures for Military Construction and Facilities Engineering," Work Unit 014, "Checking DD 1391 Submittals." The QCR is 1.10.011. The work was performed by the Management Systems Branch, Facility Acquisition and Construction Division (FA), Construction Engineering Research Laboratory (CERL), Champaign, IL. The OCE Technical Monitor is Mr. Carlton T. Dodge. The CERL Principal Investigator is Dr. William H. Stellhorn and the Branch Chief is Dr. Omar Rood.

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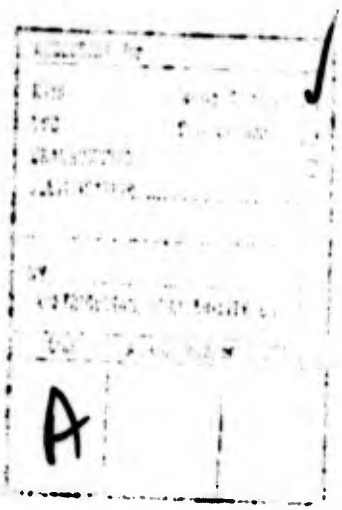
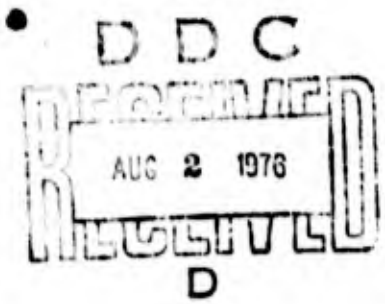
Mr. E. A. Lotz is Acting Chief of FA. COL M. D. Remus is Commander and Director of CERL and Dr. L. R. Shaffer is Deputy Director.





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PREPARATION AND REVIEW OF DD FORM 1391

1 INTRODUCTION

Background

The Military Construction Project Data Sheet (DD Form 1391) is used to state requirements and justifications in support of funding requests for military construction projects. It is submitted for all projects requiring OSD approval, including major and minor new construction and certain projects involving Operations and Maintenance, restoration of damaged facilities, and nonappropriated fund construction.

Technical review of DD Form 1391 must consider many criteria from a variety of manuals, letters, directives, and special guidance. Examination of each project requires extensive time and attention to details. The number of projects requiring review, the necessity of processing them rapidly so that basic designs and firm working estimates can be developed, and the potential penalties of delay and construction errors resulting from unsatisfied requirements create the need for a systematic method of insuring that all criteria are used, all requirements covered, and full justification presented for each project. Such a method should minimize DD Form 1391 preparation and checking time, allowing more time for project analysis and validation.

Purpose

The purpose of this report is to formulate recommendations for computer-assisted processing of DD Form 1391 and to facilitate development of the recommended procedures. Preparation of the form by Army installations and its review by the Office of the Chief of Engineers (OCE) are described. The report also identifies the regulations, criteria, and data sources on which this process is based.

Approach

Information was collected from three types of sources:

1. Department of Defense and Army regulations and criteria, especially DOD 4270.1-M, AR 415-15, AR 415-17, AR 415-20, AR 415-28, AR 210-16, AR 210-20, TM 5-800-1, TM 5-803-4, and TM 5-800-3. (See Appendix A for reference materials.)

2. Supplementary directives and guidelines issued periodically by Department of the Army (DA) and OCE, based on current needs and previous experience. These include the Program Guidance Letter issued for each fiscal year by DA and internal procedural and technical memoranda distributed at OCE to officials involved in the review process.

3. Descriptions and observations of actual reviewing practices by officials in charge of the technical review of DD Form 1391 in the Engineering Division, Military Construction Directorate of OCE.

Although the words "checking" and "reviewing" are used interchangeably in this report, an important distinction can be made between them in planning for the future. Checking implies correctness-verification, while reviewing should mean evaluation. Reviewing a project is possible only after the pertinent factual and technical data have been checked. Knowing that facts and figures have been verified to comply with written criteria enables reviewers to evaluate a project in the light of broader planning objectives, new guidelines accumulated by recent experience, and professional judgment.

Scope

AR 415-15 provides detailed instructions on the preparation and submission of DD Form 1391. It also specifies other Army Regulations and technical criteria pertaining to these operations. This report outlines the processing stages as currently performed and lists supporting references to aid investigators not totally familiar with the phases of Military Construction, Army (MCA) program development. It should therefore be read in conjunction with official guidance and regulations, rather than as an independent source of information.

Chapter 2 of this report gives background information on DD Form 1391 within the MCA program. Essential regulations, forms, and data sources are detailed. Chapter 3, on preparation and checking, discusses the technical criteria and other sources on which the form entries are based. Submittal of the form, its distribution, and review (until it reaches Congress) are described in Chapter 4. Chapter 5 contains recommendations for computer-assisted processing procedures for DD Form 1391. A discussion of reference materials and instructions for the preparation of DD Form 1391 are given in the appendices.

2 BACKGROUND

Military Construction, Army (MCA) Program Development

MCA is defined in detail in AR 37-100. It includes planning, acquisition, and construction of facilities for which the Army must obtain authorizing legislation. Program development is documented through master planning and DD Form 1391 submittals.

Several definitions from AR 415-15 are essential to an understanding of the sequence of activities in the MCA Program Development Cycle:

1. Budget Year. The fiscal year determined by adding 1 year to the fiscal year in which the budget will be submitted to Congress.

2. Five Year Defense Program (FYDP). An official publication of the Office of the Secretary of Defense (OSD), which summarizes the approved (construction) plans and programs of Department of Defense (DOD) components. The FYDP contains data from prior fiscal years and for the current fiscal year, the budget year, and 4 subsequent fiscal years.

3. Short Range Construction Program (SRCP). SRCP is the new fiscal year program being developed for submission to the Congress. It is the same as the "budget year plus one" in the FYDP, and contains the highest priority projects for future authorization as determined by the Army staff. Due to recent procedural changes, the development of a particular SRCP extends over a period of about 19 months, measured arbitrarily from the time of submission of detailed DD Forms 1391 to OCE (Figure 1, Item 8) until the final program is submitted to Congress (Item 19). Hence the preparation periods for two successive SRCPs overlap for a period of about 7 months.

4. Intermediate Range Construction Program (IRCP). IRCP contains the SRCP plus construction programs for the four succeeding fiscal years, as submitted by the commands and evaluated by the DA.

5. Long Range Construction Program (LRCP). LRCP contains the total construction requirements remaining at each installation beyond the IRCP.

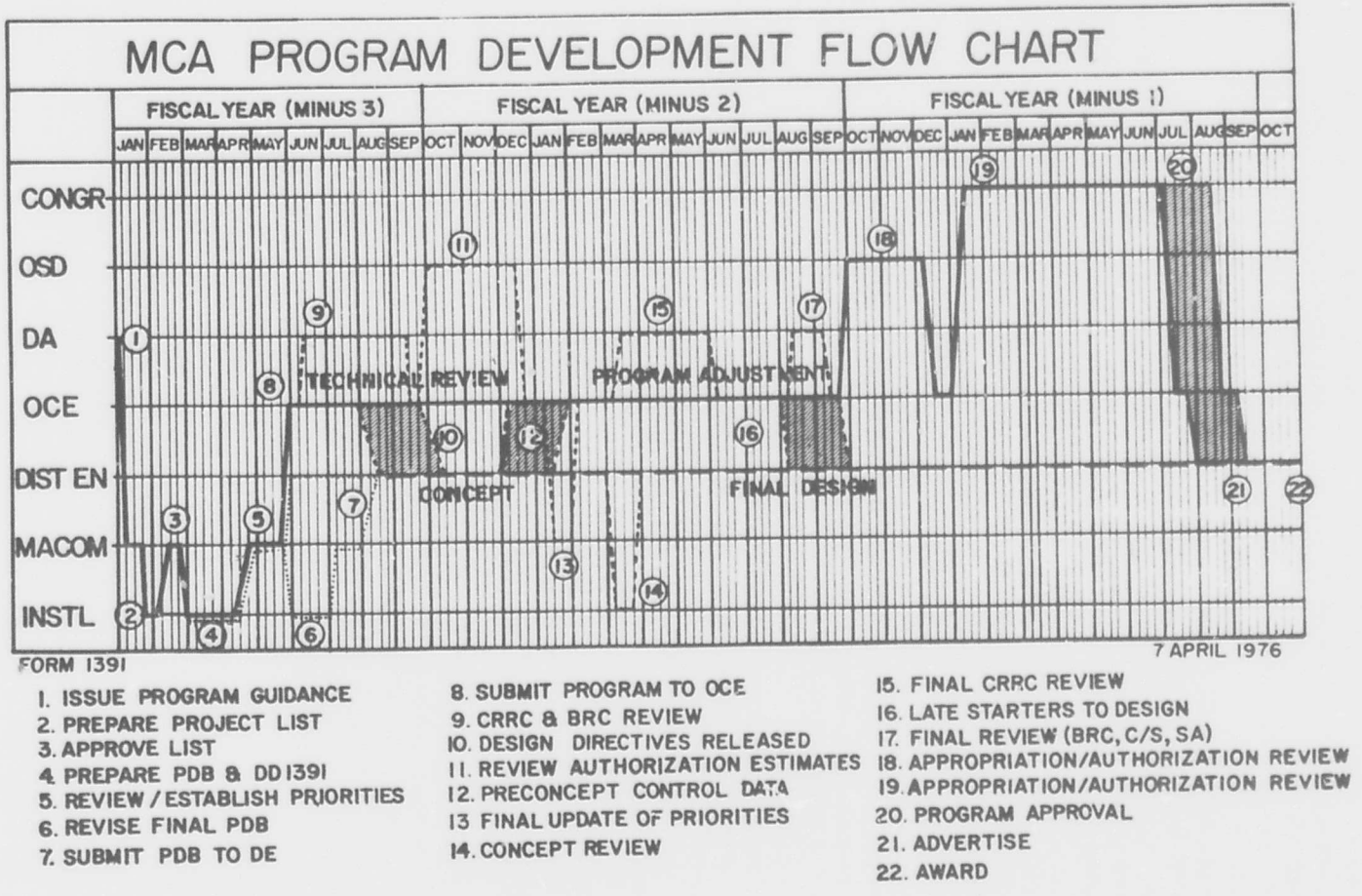
Figure 1 illustrates some of these definitions; it shows time estimates for various MCA program activities within the new October-October fiscal year. Detailed DD Form 1391 submittals for the FY 80 construction program will be presented to OCE in June of FY 77. Typically, technical reviews will be completed and concept design directives issued for approved projects around October of FY 78. Design will proceed along with various planning and review activities until the final program is submitted to Congress in January of FY 79, which corresponds to January of Calendar Year 79 and Budget Year 80. Construction of projects approved by Congress will begin in FY 80.

This report is primarily concerned with the activities involved in processing detailed DD Form 1391 submittals for projects in the SRCP.

DD Form 1391 Submittals

DD Forms 1391, which originate at the installations, are required each year for the new SRCP (current fiscal year plus three, see Figure 1) and for projects scheduled for the year which follows it. Submittals for SRCP projects are more extensive than the others and are supported by detailed justifications and other documents.

After preparation by the installation and approval by the Major Army Command (MACOM), the form is submitted to OCE for review. Within the Directorate of Military Construction, the Program, Planning, and Civil Preparedness Division (MCP) provides administrative program control while Engineering Division (MCE) performs the major technical review; the Directorate of Facilities Engineering (FE) provides review of projects related to utilities, pollution abatement, and energy conservation based on maintenance engineering expertise. The Construction Requirements Review Committee (CRRC), composed of DA staff and chaired by the Assistant Chief of Engineers (DAEN-ZC), evaluates the projects based on the Army's mission and MACOM needs. High-priority projects are then approved by CRRC for design by District Engineers. A revised DD Form 1391 (and DD Form 1391c, if required) for each of these projects is prepared by MCP for submission to OSD. This preparation includes an empirical cost estimate, based on preconcept design by the District, and carefully revised narrative justifications of the project. OSD evaluates the projects from the Defense Program aspect and submits the approved ones for review and approval by Congress, which authorizes their construction and appropriates the required funds.



1. ISSUE PROGRAM GUIDANCE
2. PREPARE PROJECT LIST
3. APPROVE LIST
4. PREPARE PDB & DD1391
5. REVIEW / ESTABLISH PRIORITIES
6. REVISE FINAL PDB
7. SUBMIT PDB TO DE
8. SUBMIT PROGRAM TO OCE
9. CRRC & BRC REVIEW
10. DESIGN DIRECTIVES RELEASED
11. REVIEW AUTHORIZATION ESTIMATES
12. PRECONCEPT CONTROL DATA
13. FINAL UPDATE OF PRIORITIES
14. CONCEPT REVIEW
15. FINAL CRRC REVIEW
16. LATE STARTERS TO DESIGN
17. FINAL REVIEW (BRC, C/S, SA)
18. APPROPRIATION/AUTHORIZATION REVIEW
19. APPROPRIATION/AUTHORIZATION REVIEW
20. PROGRAM APPROVAL
21. ADVERTISE
22. AWARD

Figure 1. MCA project development flow chart.

Master Plan

The master plan of an Army installation is an integrated series of documents which presents in graphic, narrative, and tabular form the present composition of the installation and the plan for its orderly and comprehensive development over a 20-year period. Future projects in the master plan are usually those in the IRCP and LRCP. Master Plan development is covered in AR 210-20 and is discussed here in some detail, as the master plan is one of the most important data sources for the DD Form 1391.

Master plans include the following interrelated documents developed in three phases:

Phase 1—Basic Information Components (Existing Status), which include Basic Information Maps, Regional Map, Reservation Map, Airfield-Related Map, Analysis of Existing Facilities/Environmental Assessment, and Building Information Schedule.

Phase 2—Future Development Components, which include Tabulation of Existing and Required Facilities, Regional Plan, Reservation Plan (land use), General Site Plan, and Analytical/Environmental Assessment Report.

Phase 3—Other plans for future development based on the approved site plan, including roads, utility and communication systems, recreation facilities, etc.

Appendices A-1 and A-2 of AR 210-20 list the installations for which complete master plans must be submitted and those which require only basic information documents and modified future development plans.

The requirements for permanent construction are projected on the basis of:

1. Army Stationing and Installation Plan (ASIP). This is a DA classified document (Confidential), from which every installation obtains its planning strength figures. Since the ASIP is changed frequently to meet changing conditions, the DA-approved master plan may not reflect the most recent version of the ASIP. Discrepancies must be resolved when DD Form 1391 submittals are reviewed at OCE.

2. Space allowances are indicated in DOD 4270.1-M, AR 415-18, TM 5-800-1, TM 5-803-4, TM 5-843-1, and AR 500-3.

Master plans are revised by the installation and reviewed by the Planning Branch of the Engineering Division of OCE (MCE-P) annually if required; if current plans are adequate, MCE-P is advised and no submittal is made.

Building Information Schedule (BIS)

This document, prepared for each installation listed in AR 210-20, provides the following data on existing buildings and facilities: building number, category, size, capacity, utilities, use (current and future), economic life, construction, fire rating, and type. Another document, the Real Property Inventory (RPI), provides additional information on total area, year built or acquired, estimated value, etc. for each building or facility in an installation. Input data for RPI and BIS are prepared and submitted in accordance with AR 405-45 and submitted as input data for RPI and BIS. The computerized master file of RPI and BIS could be used for information on existing buildings and facilities and their adequacy in completing DD Forms 1391. Figure 2 shows one computer report from the master file. At present, the computer printout is not produced quickly or accurately enough to be fully effective.

Tabulation of Existing and Required Facilities

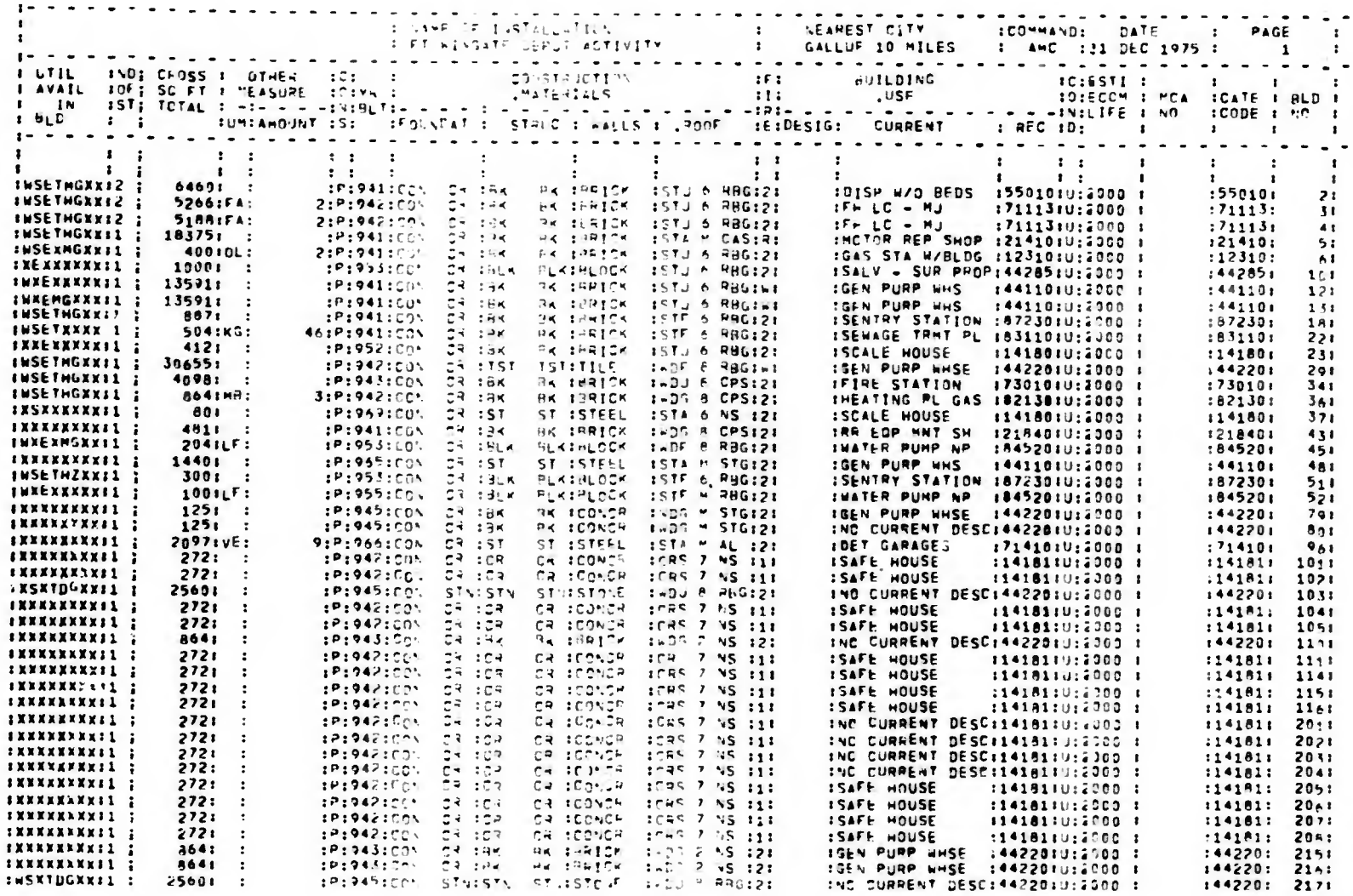
This tabulation is prepared annually by the installation on two forms:

DD 2369-1-R	Installation Strength (Figure 3)
DD 2369-2-R	Facilities Requirements (Figure 4)

Automation of the tabulation is currently being considered. If problems resulting from frequent changes in the ASIP can be resolved, the tabulation will provide an almost direct check of DD Form 1391.

Bachelor Housing

Bachelor housing facilities are listed in AR 415-28 under category 720 (specifically 721 to 72430). Occupancy capacities and space allowances for these facilities are covered in AR 210-18; the various degrees of adequacy used are defined in AR 210-16. The construction criteria are covered in DOD 4270.1-M. Although listed under the same category, such as barracks, criteria may differ for different types of facilities, because some barracks are designed for "trainees" and others for "permanent party" personnel.



UTIL IN BLD	NO OF ST	CROSS SC FT TOTAL	OTHER MEASURE UM	AMOUNT	C: S:	FOUNDAT	CONSTRUCTION MATERIALS STRUC	WALLS	ROOF	F: I: R: E:	BUILDING USE DESIG:	CURRENT	C: GSTI O: ECOM N: LIFE REC ID:	MCA NO	CATE CODE	BLD NO
WSETMGXX	2	6460			P	941	CON	CR	BK	BK	BRICK	STU 6	RBG	2	DISP W/O BEDS	55010	U: 2000		55010	2
WSETMGXX	2	9266	FA	2	P	942	CON	CR	BK	BK	BRICK	STU 6	RBG	2	FA LC - MJ	71113	U: 2000		71113	3
WSETMGXX	2	5188	FA	2	P	942	CON	CR	BK	BK	BRICK	STU 6	RBG	2	FA LC - MJ	71113	U: 2000		71113	4
WSETMGXX	1	18375			P	941	CON	CR	BK	BK	BRICK	STA M	CAS	R	MOTOR REP SHOP	21410	U: 2000		21410	5
WSEXMGXX	1	400	OL	2	P	941	CON	CR	BK	BK	BRICK	STU 6	RBG	2	GAS STA W/BLDG	12310	U: 2000		12310	6
XEXXXXXX	1	1000			P	955	CON	CR	BLK	BLK	BLOCK	STU A	RBG	2	SALV - SUR PROP	44285	U: 2000		44285	10
WXEXXXXX	1	13591			P	941	CON	CR	BK	BK	BRICK	STU 6	RBG	W	GEN PURP WHS	44110	U: 2000		44110	12
WXEMGXXX	1	13591			P	941	CON	CR	BK	BK	BRICK	STU 6	RBG	W	GEN PURP WHS	44110	U: 2000		44110	13
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XXEXXXXX	1	412			P	952	CON	CR	BK	BK	BRICK	STU 6	RBG	2	SCALE HOUSE	14180	U: 2000		14180	23
WSETMGXX	1	30655			P	942	CON	CR	TST	TST	TILE	WOF 8	RBG	W	GEN PURP WHSE	44220	U: 2000		44220	29
WSETMGXX	1	4098			P	943	CON	CR	BK	BK	BRICK	WDU 6	CPS	2	FIRE STATION	73010	U: 2000		73010	34
WSETMGXX	1	864	MR	3	P	942	CON	CR	BK	BK	BRICK	WDG 8	CPS	2	HEATING PL GAS	82130	U: 2000		82130	36
XSXXXXXX	1	80			P	969	CON	CR	ST	ST	STEEL	STA 6	NS	2	SCALE HOUSE	14180	U: 2000		14180	37
XXXXXXXX	1	481			P	941	CON	CR	BK	BK	BRICK	WDG 8	CPS	2	RR EQP MNT SH	21840	U: 2000		21840	43
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XXXXXXXX	1	272			P	942	CON	CR	CR	CR	CONCR	CRS 7	NS	1	SAFE HOUSE	14181	U: 2000		14181	105
XXXXXXXX	1	864			P	943	CON	CR	BK	BK	BRICK	WDG 7	NS	2	NC CURRENT DESC	44220	U: 2000		44220	110
XXXXXXXX	1	272			P	942	CON	CR	CR	CR	CONCR	CR 7	NS	1	SAFE HOUSE	14181	U: 2000		14181	111
XXXXXXXX	1	272			P	942	CON	CR	CR	CR	CONCR	CRS 7	NS	1	SAFE HOUSE	14181	U: 2000		14181	114
XXXXXXXX	1	272			P	942	CON	CR	CR	CR	CONCR	CRS 7	NS	1	SAFE HOUSE	14181	U: 2000		14181	115
XXXXXXXX	1	272			P	942	CON	CR	CR	CR	CONCR	CRS 7	NS	1	SAFE HOUSE	14181	U: 2000		14181	116
XXXXXXXX	1	272			P	942	CON	CR	CR	CR	CONCR	CRS 7	NS	1	NC CURRENT DESC	14181	U: 2000		14181	201
XXXXXXXX	1	272			P	942	CON	CR	CR	CR	CONCR	CRS 7	NS	1	NC CURRENT DESC	14181	U: 2000		14181	202
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XXXXXXXX	1	272			P	942	CON	CR	CR	CR	CONCR	CRS 7	NS	1	SAFE HOUSE	14181	U: 2000		14181	208
XXXXXXXX	1	864			P	943	CON	CR	BK	BK	BRICK	WDG 7	NS	2	GEN PURP WHSE	44220	U: 2000		44220	215
XXXXXXXX	1	864			P	943	CON	CR	BK	BK	BRICK	WDG 7	NS	2	GEN PURP WHSE	44220	U: 2000		44220	216
WSXTDGXX	1	2560			P	945	CON	STN	STN	STN	STONE	WDU 8	RBG	2	NC CURRENT DESC	44220	U: 2000		44220	217

Figure 2. Computer output of Building Information Schedule.

TABULATION OF EXISTING AND REQUIRED FACILITIES - INSTALLATION STRENGTHS (AR 210-20)		DATE PREPARED	PAGE NO	NO OF PAGES	REPORTS CONTROL SYMBOL ENG-126 *(R3)*
NAME OF INSTALLATION	LOCATION		COMMAND		
PRINCIPAL MISSION					

LINE	CATEGORY a	TOTAL (c + d) b	ARMY c	OTHER MIL SVC d	PCS STU e	TDY STU (Incl Non-US) f	OTHER TDY g
		LONG-RANGE STRENGTHS (ASIP)					
1	TOTALS						
2	Male Officer and Warrant Officer						
3	Female Officer and Warrant Officer						
4	Civilian (Officer equivalent)						
5	Enlisted Men						
6	Enlisted Women						
7	Civilian (Enlisted equivalent)						
		CURRENT STRENGTHS					
8	TOTALS						
9	Male Officer and Warrant Officer						
10	Female Officer and Warrant Officer						
11	Civilian (Officer equivalent)						
12	Enlisted Men						
13	Enlisted Women						
14	Civilian (Enlisted equivalent)						

MISCELLANEOUS INFORMATION h	LONG-RANGE	CURRENT
Civilian		
Enlisted E4 – E9		
ARMY STATIONING AND INSTALLATIONS PLAN DATED		
CURRENT STRENGTH AS OF (Date)		

Remarks

DA FORM 2369-1-R, 1 Jul 74 Previous editions of this form are obsolete

Figure 3. Tabulation of Existing and Required Facilities—installation strengths.

TABULATION OF EXISTING AND REQUIRED FACILITIES FACILITIES REQUIREMENTS (AR 210-20)	NAME OF INSTALLATION				DATE PREPARED	REVISION DATE (If applicable)	CATEGORY NUMBERS ON THIS PAGE		REPORTS CONTROL SYMBOL ENG - 126 *(R3)*	
							FROM	TO	PAGE NUMBER	NO OF PAGES

CATEGORY NUMBER AND FACILITY NAME	UNIT AND/OR CAPACITY	PERMANENT FACILITIES					REMARKS	NONPERMANENT FACILITIES (Existing or under Construction)	
		TOTAL ALLOWED (a)	TOTAL REQUIRED	EXISTING OR UNDER CONSTRUCTION	APROP BUT NOT UNDER CONSTRUCTION	BALANCE REQUIRED TO ACCOMPLISH MISSION		SEMI-PERMANENT	TEMPORARY
a	b	c	d	e	f	g	h	i	j

a See Department of Defense Manual 4270.1-M, and Department of the Army AR 415-18, and TM 5-800-1 and TM 5-803-4

DA FORM 2369-2-R, 1 Jul 72 Previous editions of this form are obsolete.

Figure 4. Tabulation of Existing and Required Facilities—facilities requirements.

A significant percentage of all DD Form 1391 submittals deal with bachelor housing projects. This category also requires extensive checking, mainly because it is related to troop strengths, which fluctuate substantially over relatively short periods of time. The utilization and capacity of existing bachelor housing facilities, as well as future requirements, are reported by the installation to OCE on two forms which are updated and resubmitted periodically. These forms—DA Form 1709-R and DD Form 1657, described in AR 210-18—are most important for processing DD Forms 1391 in this category.

DA Form 1709-R, "Bachelor Housing Capacities and Utilization"

This form, shown in Figure 5, is used as a basis for determining existing bachelor housing capabilities and deficiencies in stationing of troops, in mobilization planning documents, for input to the data base of the stationing capability system, and as a basis for replying to high-level inquiries. Installations are required to submit the form semiannually to Installation Planning Division, Assistant Chief of Engineers (ZCI). Some installations, listed in AR 210-18, are required to submit it quarterly. Information from the form is also used in lines 8 to 10 of DD Form 1657.

DD Form 1657, "Determination of Bachelor Housing Requirements"

Every Army installation with bachelor housing projects programmed for construction or modernization must submit DD Form 1657 (Figure 6) by 15 May each year to MCE-P, with one copy to Program Division, Assistant Chief of Engineers (ZCP). The form must also be submitted to validate projects in FYDP and to revalidate those approved by Congress prior to construction. Sources for completing the form are DOD 4270.1-M, ASIP, and AR 415-15. Preparation instructions and a definition of bachelor housing minimum adequacy requirements are given in AR 210-18. Several entries on DD Form 1391 are based on data from DD Form 1657 and are usually checked against it. It is assumed that the DD Forms 1657 are received at OCE prior to receiving DD Forms 1391.

3 PREPARATION AND CHECKING OF DD FORM 1391

Supporting References and Criteria

Installations prepare DD Form 1391 for projects selected and approved by the command from lists of projects required by the installations. The command may assist in form preparation and endorse the form before instructing the installation to submit it to OCE.

AR 415-15 gives detailed instructions for preparing the form. The data entered are based on:

1. The functional requirements of the project as described in the Project Development Brochure, Part I (PDB-1), TM 5-800-3. The PDB-1 is prepared by the installation and checked by the command. It remains with the installation until the project is approved for design; it is then submitted to the District Engineer.

2. Data on existing facilities from the Building Information Schedule.

3. The Tabulation of Existing and Required Facilities.

4. DD Form 1657 for projects in the bachelor housing category.

5. The current issue of ASIP for the latest strength projection.

6. Siting in accordance with the master plan to determine requirements for primary supporting facilities.

7. Technical criteria, including DOD 4270.1-M, TM 5-800-1, TM 5-803-4, and others for special facilities.

8. Cost estimating criteria based on AR 415-17, local experience, or architect/engineer's (A/E) preliminary estimate.

9. The yearly DA Program Guidance letter.

BACHELOR HOUSING CAPACITIES AND UTILIZATION (AR 210-18)	Period Ending	REPORTS CONTROL SYMBOL ENG-236
THRU: (Include ZIP Code)	TO: HQDA (DAEN-ZCI) WASH DC 20310	FROM: (Preparing Installation (Include ZIP Code)

SECTION I - ENLISTED BARRACKS

LINE	ITEM a	Number of Spaces b
1	Gross Capacity	
2	Permanent - Adequate	
3	Permanent - Substandard (MBMA)	
4	Semi-Permanent - Adequate	
5	Semi-Permanent - Substandard (MBMA)	
6	Substandard	
7	Diverted Spaces	
8	Permanent - Adequate	
9	Permanent - Substandard (MBMA)	
10	Semi-Permanent - Adequate	
11	Semi-Permanent - Substandard (MBMA)	
12	Substandard	
13	Unit Integrity Allowance	
14	Net Usable Spaces (1 - 7 - 13)	
15	Inactive	
16	Active	
17	Total Utilization	
18	(Utilization of Adequate Spaces)	( )
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		

SECTION I - ENLISTED BARRACKS(Continued)

LINE	ITEM a	Number of Spaces b
30		
31		
32		
33		
34		
35		

SECTION II - BACHELOR OFFICERS' QUARTERS (Include Nurses and Female Officers)

1	Total Spaces	
2	Permanent - Adequate	
3	Permanent - Substandard (MBMA)	
4	Semi-Permanent - Adequate	
5	Semi-Permanent - Substandard (MBMA)	
6	Substandard	
7	Diverted Spaces	
8	Permanent - Adequate	
9	Permanent - Substandard (MBMA)	
10	Semi-Permanent - Adequate	
11	Semi-Permanent - Substandard (MBMA)	
12	Substandard	
13	Inactive	
14	Active	
15	Utilization	

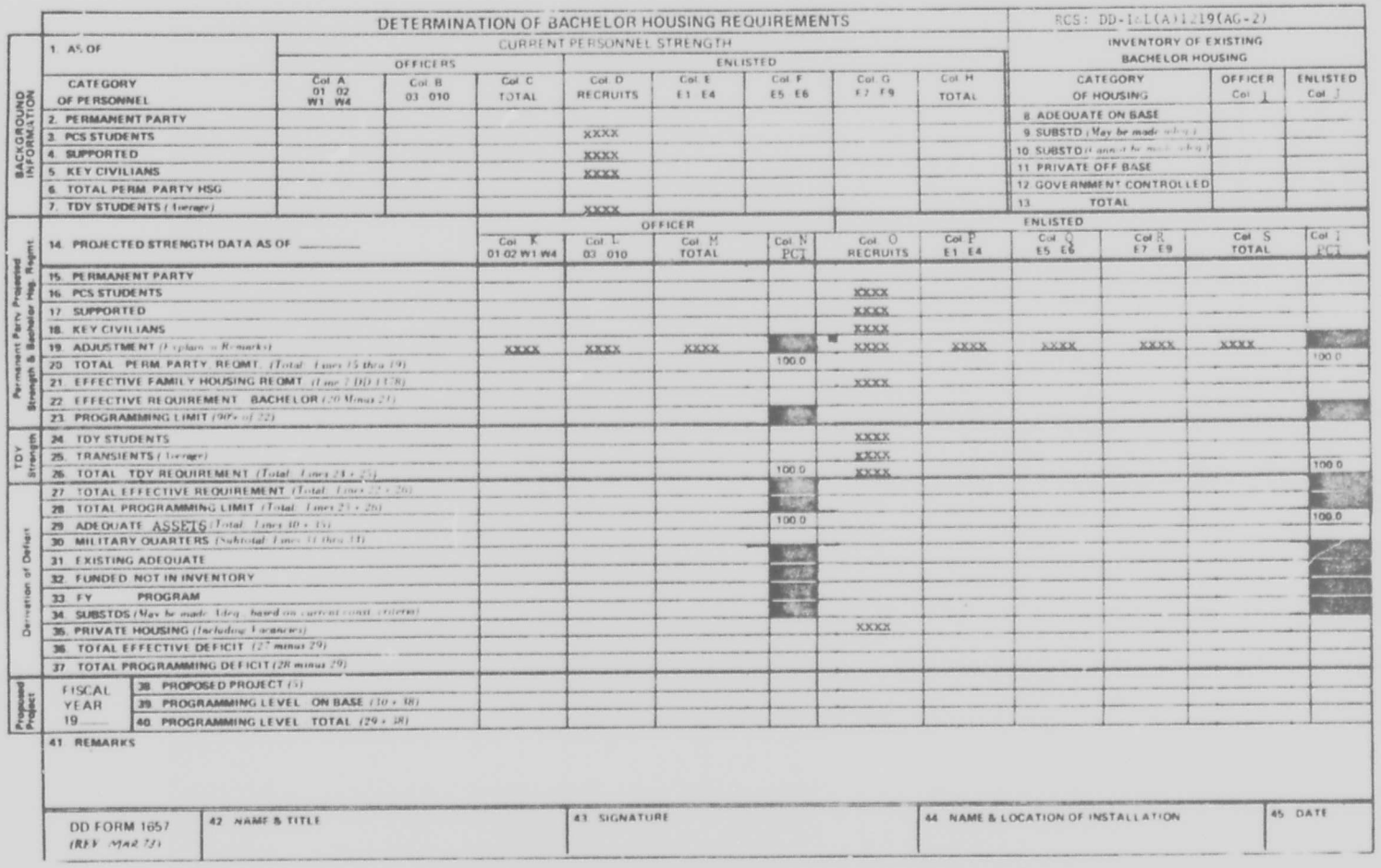
SECTION III - SITE FACILITIES

1	Total	
2	Inactive	
3	Active	
4	Utilization	

SECTION IV - Remarks (Continue on reverse)

DA FORM 1709-R, 1 OCT 74 Previous editions of this form are obsolete. (Paper size 8 x 10½", image size 7-4/10 x 10")

Figure 5. Bachelor housing capacities and utilization.



DETERMINATION OF BACHELOR HOUSING REQUIREMENTS

RCS: DD-I&L(A)1219(AG-2)

BACKGROUND INFORMATION

1. AS OF	CURRENT PERSONNEL STRENGTH								INVENTORY OF EXISTING BACHELOR HOUSING		
	OFFICERS			ENLISTED							
CATEGORY OF PERSONNEL	Col A 01 02 W1 W4	Col B 03 010	Col C TOTAL	Col D RECRUITS	Col E E1 E4	Col F E5 E6	Col G E7 E9	Col H TOTAL	CATEGORY OF HOUSING	OFFICER Col I	ENLISTED Col J
2. PERMANENT PARTY									8. ADEQUATE ON BASE		
3. PCS STUDENTS				XXXX					9. SUBSTD (May be made adeq.)		
4. SUPPORTED				XXXX					10. SUBSTD (Cannot be made adeq.)		
5. KEY CIVILIANS				XXXX					11. PRIVATE OFF BASE		
6. TOTAL PERM. PARTY HSG									12. GOVERNMENT CONTROLLED		
7. TDY STUDENTS (Average)				XXXX					13. TOTAL		

Permanent Party Projected Strength & Bachelor Hsg. Reqmt.

14. PROJECTED STRENGTH DATA AS OF _____	OFFICER				ENLISTED					
	Col K 01 02 W1 W4	Col L 03 010	Col M TOTAL	Col N PCT	Col O RECRUITS	Col P E1 E4	Col Q E5 E6	Col R E7 E9	Col S TOTAL	Col T PCT
15. PERMANENT PARTY										
16. PCS STUDENTS					XXXX					
17. SUPPORTED					XXXX					
18. KEY CIVILIANS					XXXX					
19. ADJUSTMENT (Explain in Remarks)	XXXX	XXXX	XXXX		XXXX	XXXX	XXXX	XXXX	XXXX	
20. TOTAL PERM. PARTY REQMT. (Total Lines 15 thru 19)				100.0						100.0
21. EFFECTIVE FAMILY HOUSING REQMT. (Line 2 DD 1378)					XXXX					
22. EFFECTIVE REQUIREMENT BACHELOR (20 Minus 21)										
23. PROGRAMMING LIMIT (90% of 22)										

TDY Strength

24. TDY STUDENTS					XXXX					
25. TRANSIENTS (Average)					XXXX					
26. TOTAL TDY REQUIREMENT (Total Lines 24 + 25)				100.0	XXXX					100.0

Derivation of Deficit

27. TOTAL EFFECTIVE REQUIREMENT (Total Lines 22 + 26)										
28. TOTAL PROGRAMMING LIMIT (Total Lines 23 + 26)										
29. ADEQUATE ASSETS (Total Lines 30 + 35)				100.0						100.0
30. MILITARY QUARTERS (Subtotal Lines 31 thru 33)										
31. EXISTING ADEQUATE										
32. FUNDED, NOT IN INVENTORY										
33. FY PROGRAM										
34. SUBSTDS (May be made adeq. based on current cost criteria)										
35. PRIVATE HOUSING (Including Vacancies)					XXXX					
36. TOTAL EFFECTIVE DEFICIT (27 minus 29)										
37. TOTAL PROGRAMMING DEFICIT (28 minus 29)										

Proposed Project

FISCAL YEAR 19 ____										
38. PROPOSED PROJECT (5)										
39. PROGRAMMING LEVEL ON BASE (30 + 38)										
40. PROGRAMMING LEVEL TOTAL (29 + 38)										

41. REMARKS

DD FORM 1657 (REV MAR 73)	42. NAME & TITLE	43. SIGNATURE	44. NAME & LOCATION OF INSTALLATION	45. DATE

Figure 6. Determination of bachelor housing requirements.

Table 1

Examples of Different Strength Calculations

Page in DOD 4270.1-M Oct 1972	Facility	Applicable Strength Unit	Definition of Strength
3-22	Banking Facilities	Personnel Strength	Active-duty military and civilian employees
3-22	Bowling Facilities	Military Population	Military strength plus 10 percent of the dependents
3-25	NCO Open Mess	Military Population	Active-duty NCOs in top six grades plus 50 percent of their wives and 50 percent of retired NCOs in the same grade
3-26	Officers Open Mess	Military Population	Active-duty officers, plus 50 percent of their wives and 50 percent of the retired officers
3-37	Cafeteria, Overseas	Authorized Customers	Military strength and dependents
3-52	Beauty Shop	Female Customers	Female dependents over 18, military and other authorized female personnel within 2 miles (3.2 km) or 5 miles (8.0 km) (overseas)

Only criteria 7, 8, and 9 are discussed in the following sections since 1 through 6 are self-explanatory. It should again be emphasized that although these criteria are discussed within the preparation phase context, they apply equally to the checking phase, which is presently the first step taken by all technical reviewers.

Technical Criteria

DOD 4270.1-M, Construction Criteria Manual

The office of the Deputy Assistant Secretary of Defense (I&H) is responsible for the management of DOD 4270.1-M. The manual prescribes broad and technical criteria and policy guidance for design and construction of military facilities. It applies to permanent facilities in the MCA program as well as minor construction and major alterations. General and specific criteria providing design and construction details are given for different engineering disciplines and types of facilities.

Chapter 3 of the manual, which is used extensively in preparing DD Form 1391, contains numerical data that can be tabulated and digitized. Although other chapters are related to DD Form 1391, only a few numerical criteria can be extracted from their contents, which are mainly qualitative and narrative. Examples of such criteria are parking facilities (Chapter 4), air conditioning (Chapter 8), pavements (Chapter 11), etc.

Chapter 3, "Building and Facilities Criteria," deals with specific criteria for individual facilities. It provides the maximum space allowances within which specific requirements must normally be met. The basis for space allowances is defined differently for different types of facilities. Table 1 lists several of these definitions.

The most complex criteria defined in DOD 4270.1-M are those dealing with category 720, "Bachelor Housing." They are discussed in Chapter 3, Sections 3 and 4 of the manual. The criteria provided are in textual as well as tabulated numeric form. Digitizing both kinds of criteria appears to be possible using checklists and table look-up techniques.

A sample table from the "Facility Criteria Quick Reference Chart" prepared by OCE (July 1970) to agree with the 1968 edition of DOD 4270.1-M is shown in Figure 7. This chart is an extremely valuable data source. While substantial work will be needed to update the tables and incorporate narrative criteria, the chart can be used to save a lot of effort formatting the data.

Other Technical Criteria

DOD 4270.1-M is supplemented by technical manuals in the TM 5-800 series, most of which are organized in the same pattern and use the same section numbers. A primary technical manual is TM

Facility Class or Construction Category	Facility	Ref. Document & Page	Unit of Measure	Military Strength: 0 - 500	501 - 1,000	1,001 - 3,000	3,001 - 5,000	5,001 - 7,000	7,001 - 10,000	10,001 - 15,000	15,001 - 20,000	20,001 - 25,000	25,001 - 30,000	30,001 - 35,000	35,001 - 40,000	Nonorganizational Vehicle Parking
740 41	Library - Main	A 3-26														
	Military Strength		SF	3 per person	501-1,500 2,500	501-1,500 2,500	2,501-4,000 6,000	4,001-6,000 7,800	6,001-8,000 8,800	8,001-12000 10,300	16001-20000 14,400	14,400	14,400	14,400	14,400	1 space per 300 SF of floor area
	Military Strength		SF			1,501-2,500 4,800	4,001-6,000 7,800	6,001-8,000 8,800	8,001-12000 10,300	12001-16000 12,700						
	Military Strength		SF			2,501-4,000 6,000										
42	Number of BOD's			0-30	31-150	151-250	251-400	401-750	751-1,250	1,251-2,000	2,001-3,000	3,001-4,000	4,001-5,000	5,001-6,000	6,001-up	20% of BOD strength served
	Open Mess, BOD	A 3-15	SF	***	4,400	6,500	8,000	14,000	16,800	22,000	27,800	36,000	42,000	48,000	53,000	
	BOD Bathhouse	A 3-16	SF	0	0	0	3,700	3,700	3,700	3,700	6,000	6,000	6,000	6,000	6,000	
	BOD Pool	A 3-16	Size	0	0	0	63'x82'3"	63'x82'3"	63'x82'3"	63'x82'3"	54'x165'	54'x165'	54'x165'	54'x165'	54'x165'	
46	Number of Officers			0-30	31-150	151-250	251-400	401-750	751-1,250	1,251-2,000	2,001-3,000	3,001-4,000	4,001-up			20% of officer strength served
	Open Mess, Officers	A 3-18	SF	**	4,400	8,000	12,000	16,000	22,000	27,800	36,000	40,000	48,600			
	Officers Bathhouse	A 3-17	SF	0	0	0	3,700	3,700	3,700	3,700	6,000	6,000	6,000			
	Officers Pool	A 3-17	Size	0	0	0	63'x82'3"	63'x82'3"	63'x82'3"	63'x82'3"	54'x165'	54'x165'	54'x165'			
	Military Strength			1,300-3,000	3,001-7,300	7,301-10000	10001-12300	12301-13000	13001-17300	17301-20000	20001-22300	22301-23000	23001-27300	27301-30000	30001-up add.	
30	Exchange, Branch (4,800SF)	C 7	Number	1	2	3	3	4	5	6	7	8	9	10	1/3,500	3% of all strength served if not in community center
31	Exchange Cafeteria	C 7	SF	1,830	3,700	5,400	7,600	9,300	10,700	13,600	16,800	18,600	18,600	19,100	900SF/3000	
32	Exchange Auto Service Station	C 7	SF	600	1,740	3,160	3,830	5,750	6,140	6,560	6,900	9,750	9,750			
33	Exchange Main Retail Store	C 3	*													
34	Exchange Maintenance Shop	C 11	SF	0	380	600	750	1,100	1,500	2,750	3,000	3,700	3,700	3,700	350SF/5,000	
35	Exchange Warehouse CONUS	C 9	SF	850	1,600	3,600	5,000	5,400	6,300	7,300	9,400	10,500	13,000	13,000	1,000SF/5,000	
	Alaska, Hawaii & Overseas	C 9	SF	1,280	2,400	3,900	4,500	6,600	9,300	10,950	14,100	15,750	19,500	19,500	1,500SF/5,000	
36	Exchange Service Outlets ####															4% of population served for total community center facilities
	Barber Shop #	C 22	No.-SF	1-300	1-390	1-580	1-680 1-900	1-780 1-980	1-840 1-660	1-900 1-980	1-960 1-680	1-960 1-780	1-960 1-840	1-960 1-840	2-660F/5,000	
	Beauty Shop	C 22	SF	0	220	350	510	540	700	880	1,130	1,130	1,450	1,150	900SF/5,000	
	Shoe Repair	C 22	SF	0	275	350	500	625	730	900	900	900	900	900	305SF/5,000	
	Tailor Shop ##	C 22	SF	200	200	220	400	650	700	800	900	900	900	900	305SF/5,000	
	Valet Shop ##	C 22	SF	300	650	1,180	1,100	1,300	1,300	1,300	1,500	1,500	1,500	1,500	100SF/5,000	
	Coin Oper. Laundry & Dry Cleaning	C 22	No.-SF	0	1 ea 750	1 ea 1,150	1 ea 1,150	1 ea 1,900	1 ea 2,150	1 ea 2,150	2 ea 1,900	2 ea 1,900	2 ea 2,150	2 ea 2,150	2-1150SF/500	
	Radio - TV Repair Shop	C 22	SF	0	200	360	420	420	420	420	470	470	470	470	505F/5,000	
	Portrait Studio	C 22	SF	0	740	740	740	740	930	930	1,010	1,010	1,010	1,010	805F/5,000	
	Watch Repair Shop	C 22	SF	0	130	240	310	310	400	400	460	460	460	460	605F/5,000	
	Exchange Laundry	C 9	SF	5,000	6,000	7,000	8,000	9,000	9,000	10,000	13,000	13,000	13,000	13,000	1,000SF/5000	
	Exchange Dry Cleaning	C 9	SF	1,000	1,000	1,000	2,000	3,000	3,000	4,000	7,000	7,000	7,000	7,000	900SF/5,000	
	Exchange laundry & dry cleaning note: Where facilities are to be provided at an installation with both appropriated and nonappropriated funds, the total space of both will not exceed criteria established in AR 415-18. *															
	Optical Shop	C 22		0	200	280	280	280	280	350	350	350	350	350	505F/5,000	
	Personal Services ###	C 22		0	130	250	310	310	400	600	460	460	460	460	605F/5,000	

\# The 1st barber shop is normally located in the Installation Community Shopping Center. The 2nd barber shop space allowance permits the provision of one or more supplementary shops located in appropriate areas. Further, at installations having a military strength of 2,500 or more, additional troop barber shops may be provided within and from the space allowances authorized Branch Exchange.

\#\# Tailor Shop and Laundry and Valet Service are normally combined in a single facility.

\#\#\# Personal Services include but are not limited to flowers and crated fruit orders, postage and gift wrap service, commercial money orders, travelers checks, Western Union Telegraph, transportation and theater tickets, newspaper and periodical subscriptions, and any other services of a similar nature.

\#\#\#\# When a service outlet is being installed in an existing building, the space allowance may, when necessary, be increased by 20% or 100 SF, whichever is greater. This provision is to effect economical and efficient use of existing buildings.

LEGEND

o Indicates that an information note is located at the bottom of this page.

\# Indicates that an information note is located on this page at the end of the subject category.

GENERAL NOTES

1. All square foot figures are gross unless otherwise noted.
2. Nonorganizational vehicle parking is in accordance with DOD Manual 4270.1-M, page 4-11 or survey.

SPECIAL NOTES

* See applicable page of referenced document.

** Special consideration see referenced document.

**** Provide in other facilities.

Figure 7. One page from facility criteria quick reference chart, July 1970.

5-800-1, *Construction Criteria for Army Facilities*, which is structured identically to DOD 4270.1-M. Other manuals deal with facilities in special categories, such as TM 5-803-4, *Planning of Army Facilities*, for facilities related directly to Army aviation. However, whenever conflicts arise, DOD 4270.1-M governs.

Additional criteria and rules of thumb are used at OCE; most of these are circulated internally as Standard Operations Procedures (SOPs). (See Chapter 4.) These criteria, as well as the Program Guidance letter issued by ZCP, are periodic and based on current needs or past experience.

Cost Estimating Criteria

The best sources of data for achieving cost estimates are previous bids or actual costs of similar projects in similar locations and circumstances. Whenever possible, the estimate should be based on local conditions and costs; this will entail explanation to the reviewer at OCE. In the absence of such data, AR 415-17 provides empirical guidance. The AR also establishes limits of acceptability. A sample page from AR 415-17 is given in Figure 8.

The basic data and computations in AR 415-17 have already been computerized. The program,

Table 1. Empirical Cost Estimates—Military Construction—Continued

Category code	Items		Drawing No.	Quantity and unit	Unit cost	Remarks
740-25	Education center (general)			28,500 SF	$ 43.70	
740-26	Entertainment work shop	DEF	31-23-03	4,500 SF	41.20	
	do		31-23-05	9,000 SF	39.90	
	do		31-23-07	14,000 SF	38.60	
740-28	Physical fitness center	SK	31-13-15	50,000 SF	42.30	
	Physical fitness center (w/swim pool)		31-13-16	62,000 SF	41.50	
740-32	Guest house			SF	39.90	
740-34	Gymnasium (all purpose)	DEF	31-06-20	11,000 SF	44.60	
	Gymnasium (group)		31-06-21	21,000 SF	39.90	
740-40	Library, branch	DEF	29-04-24	4,500 SF	39.90	
41	do		29-04-24	8,000 SF	41.70	
	do		29-04-24	12,000 SF	39.40	
	do		29-04-24	24,000 SF	37.50	
740-47	Mess—NCO open:					
	251-400	SK	31-03-29	6,500 SF	56.40	
	751-1, 500		31-03-31	14,000 SF	50.70	
	2,001-4,000		31-03-33	27,800 SF	48.60	
	5,001-6,000		31-03-35	36,000 SF	48.10	
740-48	Mess—officer open:					
	251-400	SK	31-02-38	10,000 SF	56.50	
	751-1,500		31-02-40	22,000 SF	53.40	
	4,001-5,000		31-02-43	36,000 SF	51.90	
740-50	Branch, post exchange w/snack bar			7,000 SF	43.60	
740-53	Post exchange w/o cafeteria			12,000 SF	40.60	
	Post exchange w/cafeteria			21,000 SF	38.90	
740-58	Post office	DEF	36-08-30	3,750 SF	45.10	
740-66	Youth center (recreational)	DEF	31-24-09	20,000 SF	40.10	
740-68	Recreation center (club—service, EM)					
	do	SK	31-18-32	12,700 SF	49.20	
	do		31-18-33	19,800 SF	46.60	
	do		31-18-29	27,800 SF	45.60	
740-76	Theaters:					
	500 seats w/stage	DEF	31-01-160	10,000 SF	60.80	
	1,000 seats w/stage		31-01-161	16,700 SF	58.40	
750-30	Swimming pools: (pool only—see bath house)					
	82'2" x 63'0"	DEF	31-10-26	5,176 SF	39.70	Outdoor.
	164'2" x 54'0"		31-10-27	8,874 SF	38.00	Outdoor.
	164'2" x 75'0"		31-10-28	12,325 SF	36.90	Outdoor.

Figure 8. Sample page of cost estimating criteria.

developed at the Construction Engineering Research Laboratory (CERL), presently handles only primary facilities but could be expanded to cover some supporting facilities as well.

Program Guidance Letter

This letter is prepared annually by ZCP and distributed to all military levels involved in the MCA program. The instructions given in the letter mainly affect the projects in IRCP for the current FY plus three. The 14 May 75 draft of FY 78 MCA Program Guidance has several valuable inclosures, including:

1. References
2. Program magnitude guidance
3. Advance approval requirements
4. Bachelor housing guidance
5. Instructions concerning special facilities and provisions.

The letter itself provides guidance in matters such as DA priorities, budget, deferral policies, advance approvals, communication and coordination, deadlines, etc. In addition, each category is discussed in a special inclosure with emphasis on particular criteria or changes of criteria.

DD Form 1391 Instructions

Main Sections

A blank DD Form 1391 is shown in Figure 9, and an example of a completed form is shown in Figure 10. Instructions for completing the 25 blocks of DD Form 1391 are contained in AR 415-15. Appendix B summarizes these instructions and supplements some of them with comments pertaining to their future processing.

DD Form 1391 contains four main sections:

1. IDENTIFICATION SECTION (blocks 1 through 13)
2. SECTION A—DESCRIPTION OF LINE ITEM (blocks 14 through 19)
3. SECTION B—COST ESTIMATES (blocks 20 through 22)
4. SECTION C—BASIS OF REQUIREMENTS (blocks 23 through 25)

The contents of blocks 19 and 25 are narrative; the remaining blocks contain short alphanumeric entries. The identification section contains such important items as project name, number, title, category, location, date, FY, and proposed authorization and appropriation based on the total estimated cost. Blocks 14 through 17 indicate the type of construction (permanence), work (new or replacement), and design (standard or special). Block 18 gives the general scope of the project (physical characteristics) based on the technical criteria. The list of items in the main facility in block 20 is also based on technical criteria (especially DOD 4270.1-M). The supporting items, block 21, are based on the site plan and other considerations. The cost estimates are based on AR 415-17, local experience, or preliminary estimates. Block 23 lists quantitative data based on the Tabulation of Existing and Required Facilities, and on DD Form 1657 in the case of bachelor housing. In Block 24 related projects should be listed to note the funding of projects which are mutually dependent.

The narrative parts of the form are the DESCRIPTION OF WORK TO BE DONE, which must be compatible with the existing and required data, and the BASIS OF REQUIREMENT, which must justify the project. These parts are crucial for the defense of the project before OSD and Congress, which do not receive the detailed justification paragraphs and cost breakdown which are attached to the form throughout the technical review.

Detailed Justification Paragraphs

The 16 DETAILED JUSTIFICATION PARAGRAPHS are an integral part of DD Form 1391 for every project in the SRCP. They constitute a checklist description that insures that all the important factors or conditions bearing on the project are considered and acted upon, if necessary. Instructions for preparation are listed in AR 415-15.

The instructions for many paragraphs provide alternative statements to be inserted to describe certain conditions. Although these options can be numbered for reference, it does not appear that this approach would be suitable for all paragraphs.

The detailed justification paragraphs are mostly narrative in nature and involve implicit and explicit

FOR OFFICIAL USE ONLY *(WHEN DATA IS ENTERED)*

1. DATE	2. FISCAL YEAR	MILITARY CONSTRUCTION PROJECT DATA	3. DEPARTMENT: ARMY	4. INSTALLATION
5. PROPOSED AUTHORIZATION: $	6. PRIOR AUTHORIZATION: P.L.	7. CATEGORY CODE NUMBER	8. PROGRAM ELEMENT NUMBER	9. STATE/COUNTRY
10. PROPOSED APPROPRIATION: $	11. BUDGET ACCOUNT NUMBER	12. PROJECT NUMBER	13. PROJECT TITLE	

SECTION A - DESCRIPTION OF PROJECT

14. TYPE OF CONSTRUCTION	18. PHYSICAL CHARACTERISTICS OF PRIMARY FACILITY			
a. PERMANENT	a. NO. OF BLDGS	b. NO. OF STORIES	c. LENGTH	d. WIDTH
b. SEMI-PERMANENT	e. DESIGN CAPACITY		f. GROSS AREA	
c. TEMPORARY	g. COOLING	CAP	COST ($)	
15. TYPE OF WORK	19. DESCRIPTION OF WORK TO BE DONE			
a. NEW FACILITY				
b. ADDITION				
ALTERATION				
d. CONVERSION				
e. OTHER (Specify)				
16. REPLACEMENT				
17. TYPE OF DESIGN				
a. STANDARD DESIGN				
b. SPECIAL DESIGN				
c. DRAWING NO				

SECTION B - COST ESTIMATES

20. PRIMARY FACILITY	U/M	QUANTITY	UNIT COST	COST ($000)
			$	$
a.				
b.				
c.				
d.				
21. SUPPORTING FACILITIES				$
a.				
b.				
c.				
d.				
e.				
f.				
g.				
h.				
i.				
j.				
22. TOTAL PROJECT COST				$

SECTION C - BASIS OF REQUIREMENT

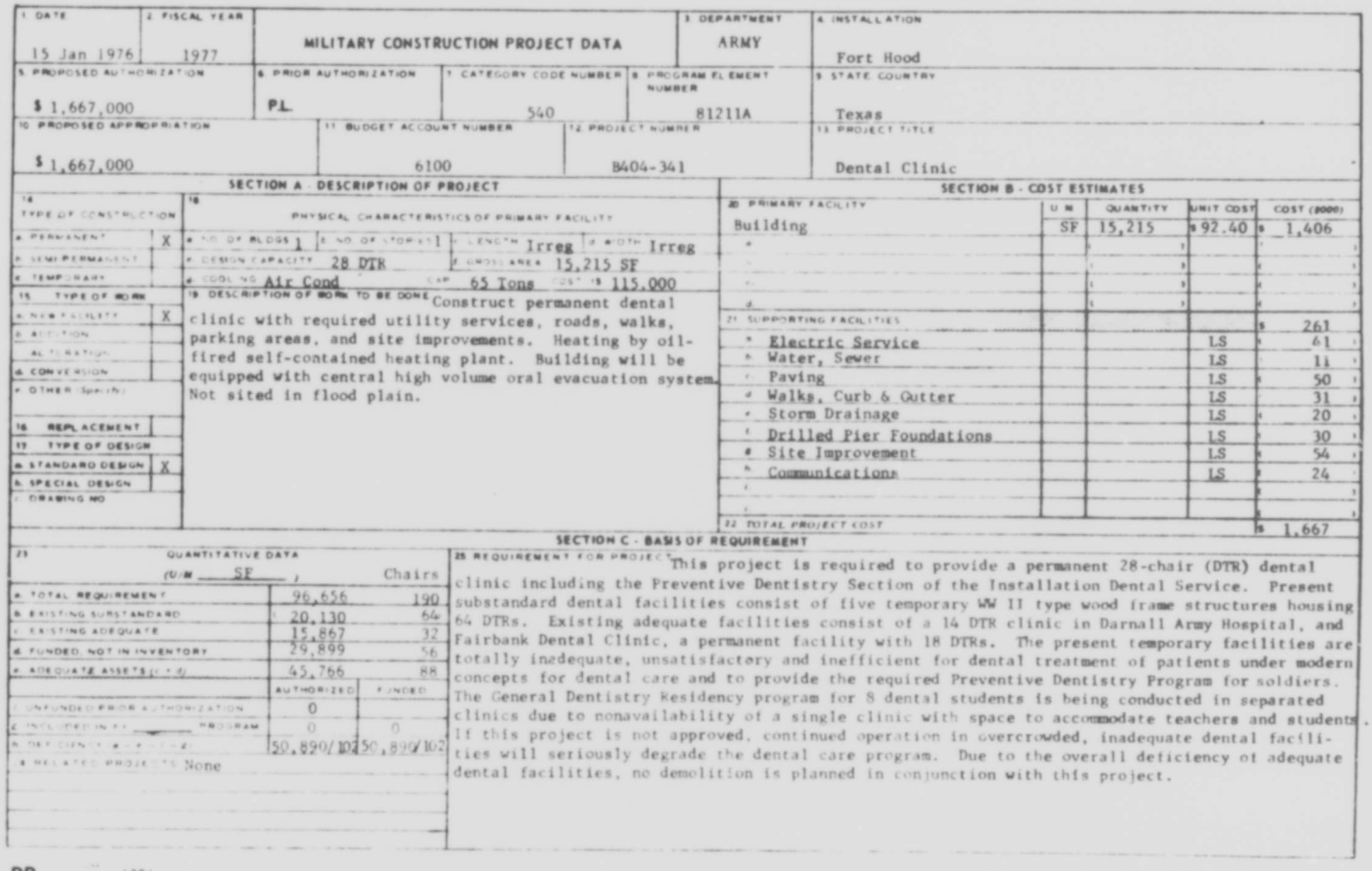
23. QUANTITATIVE DATA (U/M _____)			
a. TOTAL REQUIREMENT			
b. EXISTING SUBSTANDARD			
c. EXISTING ADEQUATE			
d. FUNDED, NOT IN INVENTORY			
e. ADEQUATE ASSETS (c + d)			
	AUTHORIZED	FUNDED	
f. UNFUNDED PRIOR AUTHORIZATION			
g. INCLUDED IN FY _____ PROGRAM			
h. DEFICIENCY (a − e − f − g)			

24. RELATED PROJECTS

25. REQUIREMENT FOR PROJECT

DD FORM 1 OCT 70 1391 FOR OFFICIAL USE ONLY *(WHEN DATA IS ENTERED)* PAGE NO

Figure 9. Blank DD Form 1391.



1. DATE: 15 Jan 1976
2. FISCAL YEAR: 1977
MILITARY CONSTRUCTION PROJECT DATA
3. DEPARTMENT: ARMY
4. INSTALLATION: Fort Hood
5. PROPOSED AUTHORIZATION: $ 1,667,000
6. PRIOR AUTHORIZATION: PL
7. CATEGORY CODE NUMBER: 540
8. PROGRAM ELEMENT NUMBER: 81211A
9. STATE COUNTRY: Texas
10. PROPOSED APPROPRIATION: $ 1,667,000
11. BUDGET ACCOUNT NUMBER: 6100
12. PROJECT NUMBER: 8404-341
13. PROJECT TITLE: Dental Clinic

SECTION A - DESCRIPTION OF PROJECT

14. TYPE OF CONSTRUCTION: a. PERMANENT X; b. SEMI-PERMANENT; c. TEMPORARY
15. TYPE OF WORK: a. NEW FACILITY X; b. ADDITION; c. ALTERATION; d. CONVERSION; e. OTHER (Specify)
16. REPLACEMENT
17. TYPE OF DESIGN: a. STANDARD DESIGN X; b. SPECIAL DESIGN; c. DRAWING NO
18. PHYSICAL CHARACTERISTICS OF PRIMARY FACILITY: a. NO. OF BLDGS 1; b. NO. OF STORIES 1; c. LENGTH Irreg; d. WIDTH Irreg; e. DESIGN CAPACITY 28 DTR; f. GROSS AREA 15,215 SF; g. COOLING Air Cond CAP 65 Tons COST $ 115,000
19. DESCRIPTION OF WORK TO BE DONE: Construct permanent dental clinic with required utility services, roads, walks, parking areas, and site improvements. Heating by oil-fired self-contained heating plant. Building will be equipped with central high volume oral evacuation system. Not sited in flood plain.

SECTION B - COST ESTIMATES

20. PRIMARY FACILITY	U/M	QUANTITY	UNIT COST	COST ($000)
Building	SF	15,215	$ 92.40	$ 1,406
a.				
b.				
c.				
d.				
21. SUPPORTING FACILITIES				$ 261
a. Electric Service			LS	$ 61
b. Water, Sewer			LS	$ 11
c. Paving			LS	$ 50
d. Walks, Curb & Gutter			LS	$ 31
e. Storm Drainage			LS	$ 20
f. Drilled Pier Foundations			LS	$ 30
g. Site Improvement			LS	$ 54
h. Communications			LS	$ 24
i.				
j.				
22. TOTAL PROJECT COST				$ 1,667

SECTION C - BASIS OF REQUIREMENT

23. QUANTITATIVE DATA (U/M SF)

		Chairs
a. TOTAL REQUIREMENT	96,656	190
b. EXISTING SUBSTANDARD	20,130	64
c. EXISTING ADEQUATE	15,867	32
d. FUNDED, NOT IN INVENTORY	29,899	56
e. ADEQUATE ASSETS (c + d)	45,766	88

	AUTHORIZED	FUNDED
f. UNFUNDED PRIOR AUTHORIZATION	0	
g. INCLUDED IN ___ PROGRAM	0	0
h. DEFICIENCY (a - e)	50,890/102	50,890/102

24. RELATED PROJECTS: None

25. REQUIREMENT FOR PROJECT: This project is required to provide a permanent 28-chair (DTR) dental clinic including the Preventive Dentistry Section of the Installation Dental Service. Present substandard dental facilities consist of five temporary WW II type wood frame structures housing 64 DTRs. Existing adequate facilities consist of a 14 DTR clinic in Darnall Army Hospital, and Fairbank Dental Clinic, a permanent facility with 18 DTRs. The present temporary facilities are totally inadequate, unsatisfactory and inefficient for dental treatment of patients under modern concepts for dental care and to provide the required Preventive Dentistry Program for soldiers. The General Dentistry Residency program for 8 dental students is being conducted in separated clinics due to nonavailability of a single clinic with space to accommodate teachers and students. If this project is not approved, continued operation in overcrowded, inadequate dental facilities will seriously degrade the dental care program. Due to the overall deficiency of adequate dental facilities, no demolition is planned in conjunction with this project.

DD 1391

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Figure 10. Completed DD Form 1391.

technical details. In general, they give the reasons behind the data in the main form. They are reviewed by professionals who use their expertise and judgment in many matters and items not covered by the written criteria. The following is a list of the 16 numbered paragraphs:

1. General
2. Accommodations Now In Use
3. Analysis of Deficiency
4. Consideration of Alternative Facilities
5. Criteria for Proposed Construction
6. Program for Related Equipment
7. Disposal of Present Assets
8. Survival Measures
9. Summary of Environmental Considerations
10. Evaluation of Flood Hazards
11. Economic Savings
12. Utility Support
13. Protection and Enhancement of Cultural Environment
14. Project Development Brochure
15. Energy Requirements
16. Provisions for the Handicapped.

These paragraphs are further elaborated in some editions of the Program Guidance letter supplementing AR 415-15.

Advance Approval

Facilities of certain types (AR 415-15, para 8-2) require advance approval before they can be reviewed by OSD. The approval must be attached to DD Form 1391.

Economic Analysis

This analysis is required for projects over $200,000 that involve a choice between two or more options. The analysis is prepared according to AR 37-13, attached to DD Form 1391, and so indicated in paragraph 11 of the detailed justification. This is a case-by-case requirement which is difficult to generalize.

Site Plans

Two general site plans of each installation with projects in the SRCP must be submitted to MCE-P no later than November 1 each year. The first is an unmarked copy; the second is annotated to show the sites for all proposed projects. For projects not sited according to the DA-approved master plan, a detailed site plan must also be submitted.

EAM Punched Cards

A pair of Electrical Accounting Machine (EAM) punched cards (Figure 11) must be submitted to MCP-A for every MCA project, regardless of range or funding source.

The information on the cards includes:

1. Identification of the project
2. Concise description of scope and cost estimate
3. Command priority number
4. Provision for indicating type of updating operations (addition, deletion, and change)
5. Blanks for command use.

The cards in effect summarize the most important blocks of DD Form 1391. They are prepared by the command, which assigns the priority number. This number is an important factor in the decision of CRRC, which assigns the project its priority.

The purpose of these cards is to match and update the OCE MCA Program Master File which contains additional data, including historical information. Listings of MCA projects can be produced from this tape in several ways, including sorting by district (for directing design), command, category, and sequential project number. These lists provide information on program volume, frequency of categories, etc.

Instructions for punching EAM cards are given in AR 415-15.

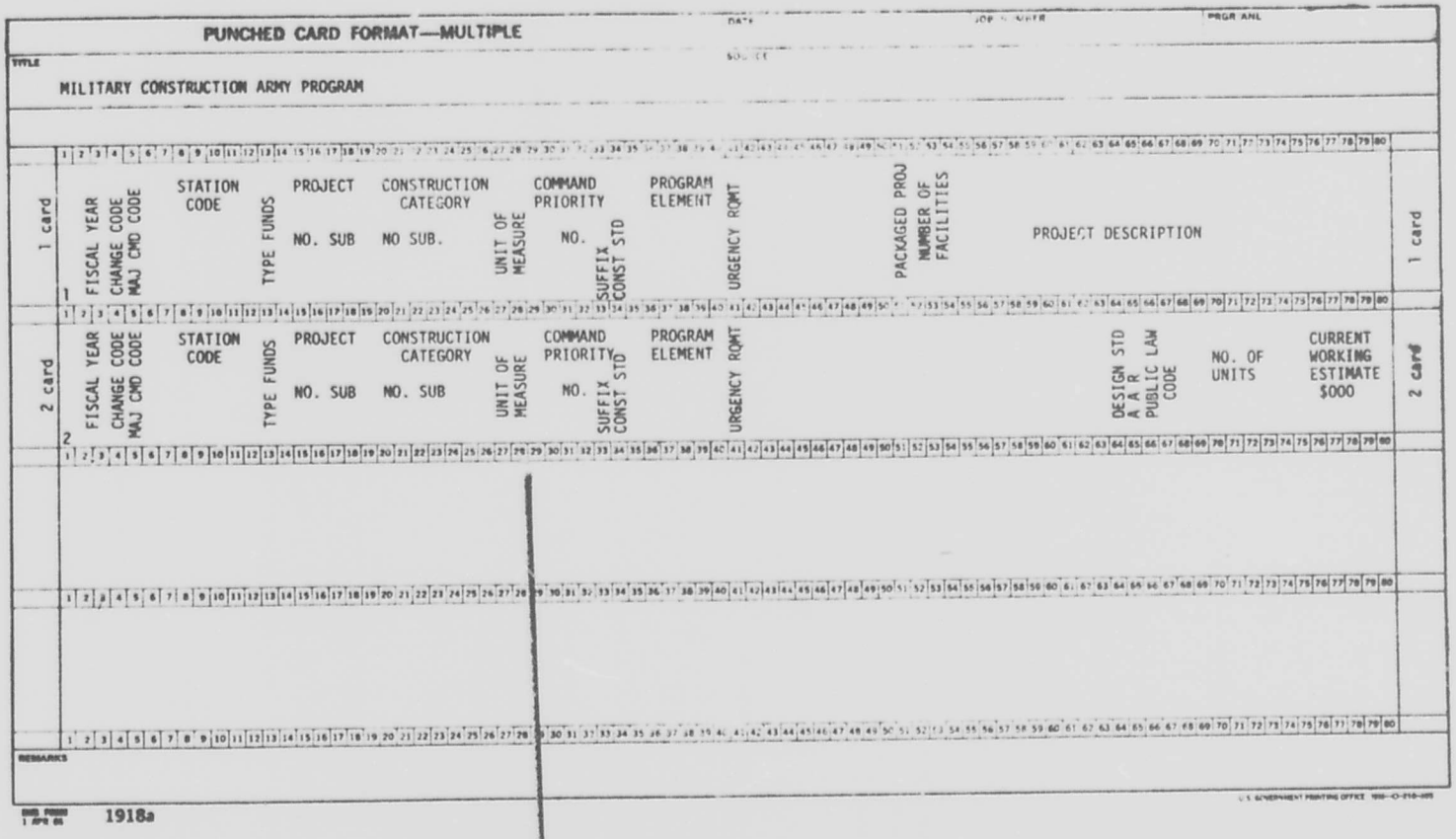


Figure 11. EAM cards.

Submission Requirements

The following must be submitted to OCE not later than November 1 each year for each project in SRCP (DEADLINE SUBJECT TO CHANGE):

1. DD Form 1391 and continuations DD Form 1391c, if necessary

2. Detailed Justification Paragraphs

3. Economic Analysis and Advance Approval if required

4. Site plans

5. Two EAM punched cards.

Twenty-five copies of each document must be submitted, except for the site plans and EAM cards. Other required forms, such as DD Form 1657 for bachelor housing, are expected to have been submitted prior (or concurrently) to the above.

DD Form 1390 (Figure 12) must also be submitted for projects in the SRCP. This form is an index or summary of the projects, which are listed by command and shown with priority numbers assigned by the MACOM. It also provides installation mission and existing and long-range strength data.

4 REVIEW OF DD FORM 1391

General

DD Form 1391, approved by MACOM, is generally reviewed at three staff levels before it is submitted to Congress for approval. Each level considers the proposed project from a different aspect:

1. OCE—Engineering criteria

2. CRRC—Construction requirements and mission

3. OSD—Program review.

Although ideally the technical review should be completed before the CRRC review, in practice they are sometimes conducted concurrently. The technical review results in an annotated DD Form 1391; the CRRC review results in a priority recommendation, which is sent to the Program Division (MCP). MCP sends a list of high priority or recommended projects to the Construction Division (MCC), which also receives all the annotated forms from Engineering Division (MCE). Design directives for the recommended projects are issued by MCC to the District Engineers.

The District Engineer prepares a Project Development Brochure, Part II (PDB-II) based on the annotated, reviewed DD Form 1391 and the functional requirements of the installation (PDB-I). It then submits the current working estimate (ENG Form 3086) based on pre-concept design to MCE-S for review. At this time, the DD Form 1391 usually undergoes a minor review at MCE for compatibility with the adjusted cost. Following this, MCP prepares revised DD Forms 1390 and 1391 (and 1391c, if required) for submission to OSD. After the OSD review, MCP-A prepares various required listings from the master tapes for submission to Congress along with the corresponding DD Forms 1391. Congress authorizes and appropriates the funds for the construction of the projects approved by its committees.

Directorate of Military Construction, Engineering Division (MCE) Standard Procedures

The technical review of DD Form 1391 is done mainly in the five branches of DAEN-MCE. A lateral review is done by the Facilities Engineering Directorate (FE). In addition, a professional review for special projects is sometimes required and performed outside OCE.

An Engineering Division memorandum, dated 25 January 1975, defines the procedures for the technical review of DD Form 1391. The following paragraphs describe these procedures and the general checking and reviewing outline.

Recording

MCP furnishes the Planning Branch of MCE (MCE-P) with four copies of DD Form 1391 for each project. Other documents related to master planning, such as site plans and DD Form 1657, are filed directly with MCE-P.

At MCE-P the copies are labeled one to four and recorded in a logbook by command. The information recorded essentially gives the status of each project: date received, date reviewed and by what

FOR OFFICIAL USE ONLY *(WHEN DATA IS ENTERED)*

1. DATE	2. DEPARTMENT	FY 19__ MILITARY CONSTRUCTION PROGRAM	3. INSTALLATION
	ARMY		

4. COMMAND OR MANAGEMENT BUREAU	5. INSTALLATION CONTROL NUMBER	6. STATE, COUNTRY	
7. STATUS	8. YEAR OF INITIAL OCCUPANCY	9. COUNTY *(U.S.)*	10. NEAREST CITY

11. MISSION OR MAJOR FUNCTIONS

12. PERSONNEL STRENGTH

	PERMANENT			STUDENTS		SUPPORTED			
	OFFICER (1)	ENLISTED (2)	CIVILIAN (3)	OFFICER (4)	ENLISTED (5)	OFFICER (6)	ENLISTED (7)	CIVILIAN (8)	TOTAL (9)
a. AS OF __									
b. PLANNED *(End FY)*									

13. INVENTORY

LAND	ACRES (1)	LAND COST ($000) (2)	IMPROVEMENT ($000) (3)	TOTAL ($000) (4)
a. OWNED				
b. LEASES AND EASEMENTS				
c. INVENTORY TOTAL *(Except land rent)* AS OF 30 JUNE 19 ____				
d. AUTHORIZATION NOT YET IN INVENTORY				
e. AUTHORIZATION REQUESTED IN THIS PROGRAM				
f. ESTIMATED AUTHORIZATION - NEXT 4 YEARS				
g. GRAND TOTAL *(c + d + e + f)*				

SUMMARY OF INSTALLATION PROJECTS

PROJECT DESIGNATION				AUTHORIZATION PROGRAM		FUNDING PROGRAM	
CATEGORY CODE NO. a	PROJECT TITLE b	TENANT COMMAND c	UNIT OF MEASURE d	SCOPE e	ESTIMATED COST ($000) f	SCOPE g	ESTIMATED COST ($000) h

DD FORM 1 OCT 70 1390

FOR OFFICIAL USE ONLY *(WHEN DATA IS ENTERED)*

PAGE NO

Figure 12. DD Form 1390.

branch, design changes, CRRC priority, date released, etc.

An additional copy is furnished directly by MCP to MCE-S. This copy is used as a basis for providing MCP a preliminary cost review. MCE-S then makes its annotations on the circulation copy one (within the regular review cycle) and on this additional copy, which is kept in MCE-S files. Some cost adjustments may be necessary due to reviewer revisions.

Circulation

After being recorded, the form is circulated for technical review and comments by the division branches. The process is scheduled to be completed in 10 days. The process starts at MCE-P and copy one circulates from branch to branch. A routing slip is attached to copy one to indicate the dates "in" and "out" at each branch. The review in the branches proceeds in the following order, with each branch using its designated color for annotation:

1. Planning (MCE-P) .....Green
2. Structures (MCE-A) .....Blue
3. Utilities (MCE-U) .....Brown
4. Advanced Technology (MCE-D) .....Orange
5. Specifications and Estimating (MCE-S) . . Purple.

At each branch the form is again recorded: checked "in," circulation slip attached, circulated, and checked "out." Each reviewer adds his annotations based on all his predecessors' comments and the requirements of his own particular discipline. The form is returned to MCE-P where it is reviewed again to resolve conflicts and evaluate the overall project. Any comments from FE are received through MCE-U and incorporated. A diagram included in the division SOP memorandum summarizes the circulation just described (Figure 13).

Copies two and three are annotated in black ink by copying the annotated copy one. These copies are used by MCP and MCC, respectively, to prepare the submission to OSD and to issue design directives to the districts.

Copy four is used for specialized reviews. This copy is most frequently forwarded to Troop Support Agency (TSA) to review dining facilities. Another specialized review is that of airfield facilities done by MCE-P.

Checking Activities

The following are the main checking activities:

1. Verification of existing and required data using ASIP and the master plan. This step often involves requesting clarification from the installations, 20 to 30 percent of which must be done in writing. Missing documents (such as Advance Approval) and incompatibilities are frequent reasons.

2. Check of the scope based on the validated requirements, the technical manuals (mainly DOD 4270.1-M, TM 5-800-1, Program Guidance, and internal SOPs), and professional expertise and judgment.

3. Check of the supporting facilities using the above guidelines and site plan.

4. Check of cost estimates according to AR 415-17.

5. Check of feasibility of the whole project and compatibility of data.

Files

Typically, the files kept by MCE-P contain DD Forms 1391, organized by commands, spanning four fiscal years with status ranging from under review to under construction. Approved forms are usually used for reference and comparison with actual design and construction by various OCE technical divisions.

Quantities and Frequencies

Quantities and category frequencies can be found from the listing of EAM cards. Recently, 450 DD Forms 1391 were filed for one FY, of which 170 were approved by OCE and CRRC. Twenty of these were dropped by OSD; of the remaining, 130 were approved for construction by Congress.

Directorate of Military Construction, Engineering Division (MCE) Review

Technically the complete sequence of branches listed in "Circulation" is desirable and should be followed, preferably with all comments to be made

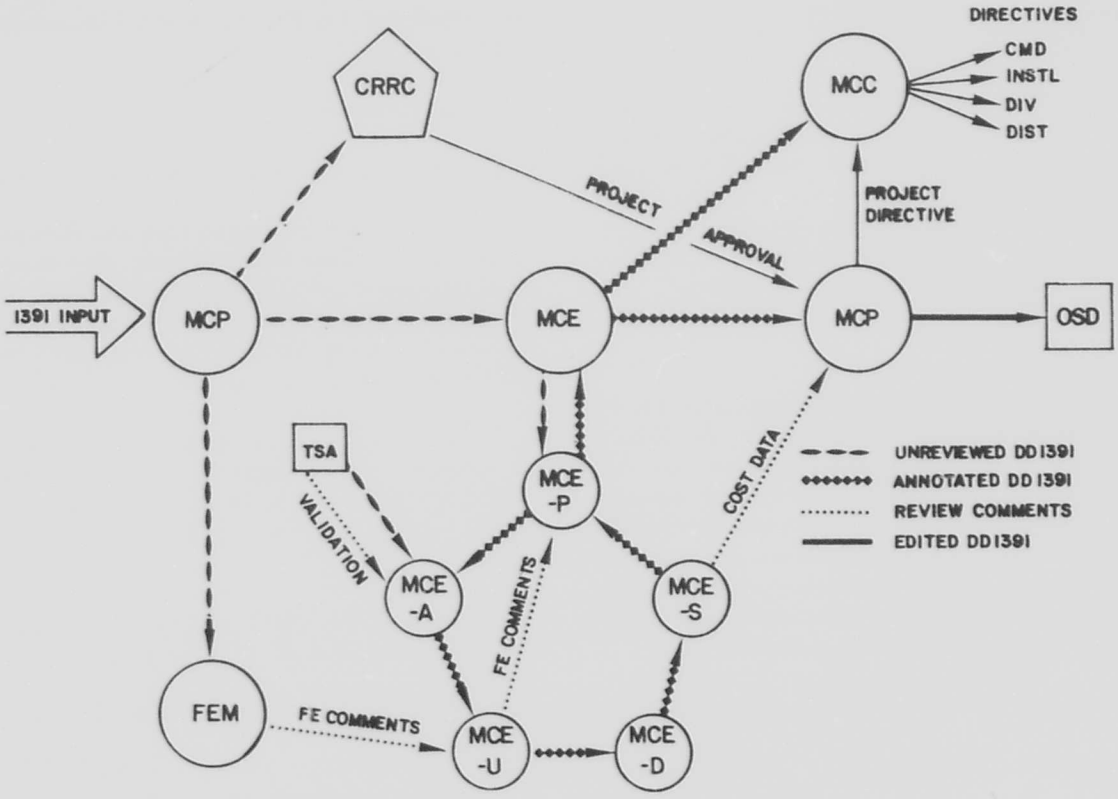


Figure 13. Basic DD Form 1391 review flow chart.

on a single copy of the DD Form 1391, since the annotations are subsequently transcribed. It should be noted that although the blocks to be checked by each branch are specified, there is considerable overlap that precludes exclusivity of responsibilities.

Planning Branch (MCE-P)

In addition to monitoring the technical review MCE-P is responsible for:

1. Project site approval (including para 10, Detailed Justifications, "Flood Hazards")

2. Justification of requirements in relation to total allowance

3. Quantitative adequacy of roads, parking, and site improvements (block 21)

4. Verification of blocks 23 and 24.

The following sections of MCE-P review DD Forms 1391: Master Planning, Planning Requirements, and Airfield Planning. Detailed responsibilities of each are listed in an MCE-P Standard Operations Procedure (SOP). The process starts when a routing slip and blank ENG Form 0-2519 (Figure 14) are attached to copy one. The four reviewers in the planning branch fill out the form with their comments and annotate the copy. This prior verification and approval of siting and requirements by MCE-P facilitates succeeding reviews.

Structures Branch (MCE-A)

MCE-A is responsible for the review of:

1. Architectural requirements (space and function, including provision for physically handicapped)

2. Structural requirement

3. Fallout shelter provisions

4. Fire safety construction

5. Dining facilities coordination with TSA

ENG Form 0-2519
22 Jan 69

BASIS FOR PROPOSED FY ____ MCA

Checker _____

INSTALLATION NAME _____

Date _____

Line Item No	Item & Quantity	Total Allowed TM 5-803-4, TM 5-800-1,DOD4270.1-M	Existing/ Funded thru FY__	Funded in FY ___	Proposed in FY ____	Balance Required	Allow in FY ____	REMARKS

Figure 14. ENG Form O-2519.

6. Protection of cultural environment and historic sites

7. Verification and adequacy of blocks 14 through 21 and 25.

The following sections of MCE-A Review DD Forms 1391: Architecture (ARCH), Structure (STRUC), Dining Facilities (DOD), and Special Historic Sites, etc. (SP). An MCE-A internal SOP, "Architectural Section's DD Form 1391 Review Procedures," dated 20 Feb 74, gives detailed instructions on what and how that section should review, with especially useful details on the review of blocks 14 through 21. It is an important guide for checking and calculating technical criteria from manuals as well as from internal guidelines based on experience.

The responsibilities of the other three sections are apparent from their names and branch responsibilities mentioned above.

Utilities Branch (MCE-U)

MCE-U is responsible for the review of:

1. Utilities systems and their adequacy

2. Environmental impact of utilities

3. Fire protection systems

4. FE comments before sending to MCE-P

5. Verification of utilities-related statements in blocks 18g, 19, 20, 21, and 24

6. Review of Paragraphs 6, 9, and 12 of Detailed Justifications (Equipment, Environment, and Utility Support).

The following sections of MCE-U review DD Form 1391: Mechanical, Sanitary, and Electrical.

Review in this branch is mainly a matter of professional expertise and judgment rather than written technical criteria. Coordination between main and supporting facilities is implicit; for example, the reviewer expects to find a transformer requirement associated with a large air conditioning system.

Advanced Technology Branch (MCE-D)

MCE-D is responsible for the review of:

1. Protective construction

2. Ammunition and explosives-related facilities

3. Physical security facilities

4. Intrusion-detection alarm systems

5. Transportation facilities

6. Pavement design and curb/gutter items

7. Unusual soil and foundation conditions

8. Site grading and drainage

9. Advanced weapons and explosive facilities

MCE-D also recommends selected projects for life-cycle cost analysis.

MCE-D review is similar in nature to that of MCE-U.

Specifications and Estimating Branch (MCE-S)

In reviewing DD Form 1391 for unit and total costs verification (blocks 20-22), MCE-S is responsible for insuring that:

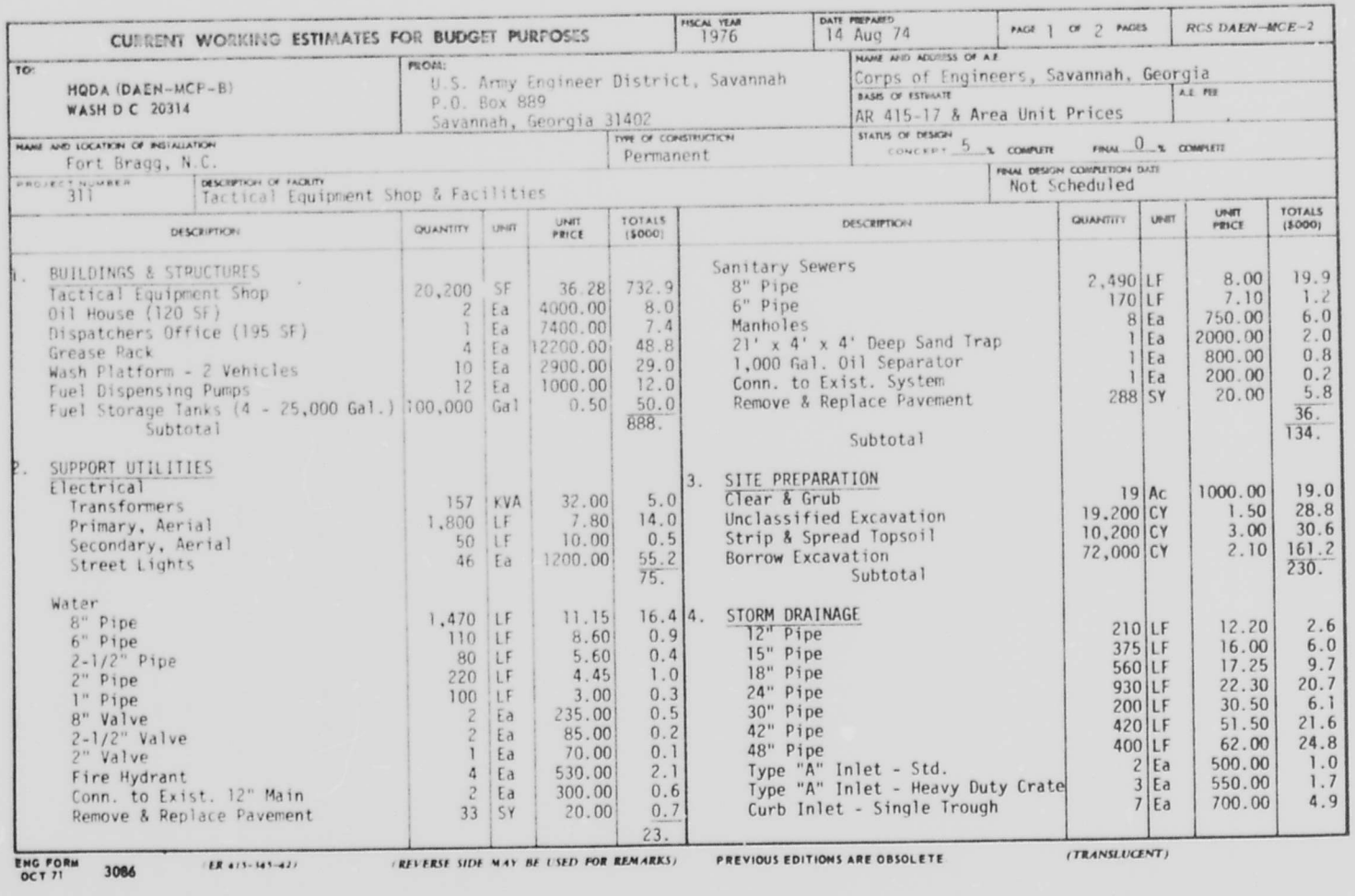
1. Unit costs limited by congressional statutes for some projects are not exceeded.

2. Cost of facilities is reasonable; when it is not, recommendations for changes are made.

The following are additional important functions of MCE-S:

3. Review of unit and total costs using the annual updating of program guidance contained in AR 415-17 as a guide.

4. ENG Form 3086 (Figure 15). These forms are received directly by MCE-S for all projects approved for design. They give a detailed breakdown of cost.



CURRENT WORKING ESTIMATES FOR BUDGET PURPOSES | FISCAL YEAR 1976 | DATE PREPARED 14 Aug 74 | PAGE 1 OF 2 PAGES | RCS DAEN-MCE-2

TO: HQDA (DAEN-MCP-B), WASH D C 20314

FROM: U.S. Army Engineer District, Savannah, P.O. Box 889, Savannah, Georgia 31402

NAME AND ADDRESS OF A.E.: Corps of Engineers, Savannah, Georgia

BASIS OF ESTIMATE: AR 415-17 & Area Unit Prices

A.E. FEE:

NAME AND LOCATION OF INSTALLATION: Fort Bragg, N.C.

TYPE OF CONSTRUCTION: Permanent

STATUS OF DESIGN: CONCEPT 5 % COMPLETE FINAL 0 % COMPLETE

PROJECT NUMBER: 311

DESCRIPTION OF FACILITY: Tactical Equipment Shop & Facilities

FINAL DESIGN COMPLETION DATE: Not Scheduled

DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTALS ($000)
1. BUILDINGS & STRUCTURES				
Tactical Equipment Shop	20,200	SF	36.28	732.9
Oil House (120 SF)	2	Ea	4000.00	8.0
Dispatchers Office (195 SF)	1	Ea	7400.00	7.4
Grease Rack	4	Ea	12200.00	48.8
Wash Platform - 2 Vehicles	10	Ea	2900.00	29.0
Fuel Dispensing Pumps	12	Ea	1000.00	12.0
Fuel Storage Tanks (4 - 25,000 Gal.)	100,000	Gal	0.50	50.0
Subtotal				888.
2. SUPPORT UTILITIES				
Electrical				
Transformers	157	KVA	32.00	5.0
Primary, Aerial	1,800	LF	7.80	14.0
Secondary, Aerial	50	LF	10.00	0.5
Street Lights	46	Ea	1200.00	55.2
				75.
Water				
8" Pipe	1,470	LF	11.15	16.4
6" Pipe	110	LF	8.60	0.9
2-1/2" Pipe	80	LF	5.60	0.4
2" Pipe	220	LF	4.45	1.0
1" Pipe	100	LF	3.00	0.3
8" Valve	2	Ea	235.00	0.5
2-1/2" Valve	2	Ea	85.00	0.2
2" Valve	1	Ea	70.00	0.1
Fire Hydrant	4	Ea	530.00	2.1
Conn. to Exist. 12" Main	2	Ea	300.00	0.6
Remove & Replace Pavement	33	SY	20.00	0.7
				23.
Sanitary Sewers				
8" Pipe	2,490	LF	8.00	19.9
6" Pipe	170	LF	7.10	1.2
Manholes	8	Ea	750.00	6.0
21' x 4' x 4' Deep Sand Trap	1	Ea	2000.00	2.0
1,000 Gal. Oil Separator	1	Ea	800.00	0.8
Conn. to Exist. System	1	Ea	200.00	0.2
Remove & Replace Pavement	288	SY	20.00	5.8
				36.
Subtotal				134.
3. SITE PREPARATION				
Clear & Grub	19	Ac	1000.00	19.0
Unclassified Excavation	19,200	CY	1.50	28.8
Strip & Spread Topsoil	10,200	CY	3.00	30.6
Borrow Excavation	72,000	CY	2.10	161.2
Subtotal				230.
4. STORM DRAINAGE				
12" Pipe	210	LF	12.20	2.6
15" Pipe	375	LF	16.00	6.0
18" Pipe	560	LF	17.25	9.7
24" Pipe	930	LF	22.30	20.7
30" Pipe	200	LF	30.50	6.1
42" Pipe	420	LF	51.50	21.6
48" Pipe	400	LF	62.00	24.8
Type "A" Inlet - Std.	2	Ea	500.00	1.0
Type "A" Inlet - Heavy Duty Crate	3	Ea	550.00	1.7
Curb Inlet - Single Trough	7	Ea	700.00	4.9

ENG FORM 3086 OCT 71 (ER 415-345-42) (REVERSE SIDE MAY BE USED FOR REMARKS) PREVIOUS EDITIONS ARE OBSOLETE (TRANSLUCENT)

Figure 15. ENG Form 3086.

which is coordinated with the cost shown on the DD Form 1391. All cost revisions are prepared by MCE-S and transmitted to MCP.

5. Downscoping. OSD may decide not to approve the full estimate for a recommended project. This forces a downscoping, accomplished by reducing the scope of the project items. In this case MCE-S must adjust the figures and estimates.

Another cause for downscoping may be changes in the overall budget situation during the long period between initial project estimates on the DD Form 1391 and the presentation to Congress. Then the scope may be trimmed to fit the President's budget.

6. Automation. The empirical method of estimating specified by AR 415-17 has recently been automated.

Specialized Reviews

Specialized reviews are required for facilities whose design must be approved or supervised by special agencies inside or outside OCE. The comments by FE on utilities, the TSA review of dining facilities, and MCE-P review of aviation facilities have previously been mentioned. Another example is medical facilities, such as clinics and hospitals, which are reviewed within OCE on a different schedule from other projects.

Second Review Cycle

The following are the ordinary causes for a second review cycle, either minor or major.

ENG Form 3086

After MCE reviews DD Form 1391, it is returned to MCE-P where the annotations are transcribed, recorded, and sent to MCC. If the project is released for design, the District is issued design authorization to begin concept design. A detailed cost estimate (based on pre-concept design) is provided on ENG Form 3086 and transmitted directly to MCE-S. At MCE-S the figures are reviewed and coordinated with the DD Form 1391. Revised cost estimates, if required, are sent to MCP. All changes necessitate further review by the MCE staff.

Downscoping

Downscoping, which occurs when OSD approves less funding than the current program estimate on DD Form 1391, entails a similar review. Downscoping is explained in detail under "Specifications and Estimating Branch."

CRRC Review

Information about construction requirements from various DA agencies is conveyed to the proponents of Construction Requirements Review Committee (CRRC). Committee meetings are held at the Pentagon with two representatives from OCE (MCP-B and MCE-P) participating as nonvoting consultants. These meetings usually occur after the technical review of projects has been completed, although the CRRC review and the technical review sometimes proceed in parallel with the former trailing slightly.

CRRC reviews the projects by categories using a list prepared by MCP-A from the ADP tape. The list contains, among other things, command priority numbers. A program manager in ZCP is responsible for directing the order in which projects are reviewed. The OCE representatives use the same project list, with annotations reflecting the results of the technical review.

The objective of CRRC review is to assign each project within each category (see AR 415-28) a group number (1 to 6); the project is approved or disapproved for design on this basis. A group number of "1" is given to directed projects that must be included in the program and approved for design. Projects judged "minimum essential" "2" or "highly desirable" "3" are usually approved for design. Refined ratings such as "2+" and "3−" are also used. A "4" is given for "desirable" projects that can be delayed until the following year. Groups "5" and "6" include projects that should be deferred or deleted, respectively. The design of high-cost projects (A/E fee in excess of $225,000) when approved by the CRRC must be delayed 30 days from the time Congress is notified. The decisions of CRRC are based on:

1. Army, command, and installation mission
2. Command priority number
3. Technical review
4. Budgetary considerations.

Projects are released for design by MCP-B following each CRRC meeting and discussion with the program manager. In each category the projects are arranged by priorities (all "ones" first, then "twos," etc.) and are listed in that order from the ADP tapes, which have been updated to reflect technical and CRRC review results. A line is drawn on each category list below the last project approved for design. The position of the line depends on the total dollar amount allocated for that category. A subsequent decrease or increase in this allocation causes the line to move up or down respectively.

Design Directives

MCC issues Design Directives to the District Engineer upon receipt of instructions from MCP. The annotated copy three received by MCC-A from MCE-P is attached to the Design Directive. The District prepares a Project Development Brochure, Part-II (PDB-II), Design Requirements, based on the functional requirements described in PDB-I which is provided by the installation, and then proceeds with design. A detailed cost estimate, based on pre-concept design, is prepared on ENG Form 3086 with sketch plans, site plans, and outline specifications, and sent to MCE-S (AR 415-20) as previously discussed.

The procedures that lead to issuing a design directive or approving a project are the following:

1. Transfer of all annotated DD Forms 1391 from MCE-P to MCC-A.

2. Issuance of a "Program Design Change Sheet" by MCP-B to MCC-A, directing design on some projects or holding others based on CRRC decisions.

Review Order

The order in which DD Forms 1391 are reviewed is determined by a preliminary sorting based on prediction of the CRRC grouping numbers. This is done informally by MCP-B and MCE-P based on their previous experience and familiarity with CRRC procedures. The objective of this sorting is:

1. To expedite approval of very important projects and disapproval of those which are not likely to be approved by CRRC. This is done by MCP through "Program Design Change Sheets" which are sent to MCE-P and MCC-A.

2. To assure that the technical review is concurrent with discussion by CRRC.

CRRC decisions sometimes disagree with initial predictions. In such cases "Program Design Change Sheets" are issued again to reflect the CRRC decisions.

OSD Review

MCP prepares CRRC-approved projects for submission to OSD. Annotated copy two is obtained from MCE-P. The projects are listed using the ADP tape which is updated to correspond to the various reviewers' annotations and the cost estimate as adjusted after submission of ENG Form 3086. The front sheets (DD Form 1391 and DD Form 1391c, if required) are submitted without the detailed justification paragraphs. The wording of the narrative parts of the form is done with great care since these parts, block 25 in particular, are probably the most important means by which DA transmits to OSD the need for the construction projects requested.

OSD review is based on the overall defense program. Ninety percent of the projects are approved for inclusion in the budget request to be submitted to Congress.

Congressional Review

MCP prepares the submission of OSD-approved projects to Congress. The forms as well as project listings by command and construction category are reviewed by two committees of the House and two of the Senate for authorization and appropriation. A high percentage of the projects submitted are approved. Since the approval is a program approval, only disapproved projects are treated individually.

Projects approved by Congress are released for construction after the Authorization and Appropriations Acts are signed by the President. The design of projects not authorized or funded is usually stopped unless it has passed beyond the conceptual phase, in which case completion of the final design is generally allowed.

Communication

During the review process, the following types of communication take place between the installation, the commands, and OCE:

1. Requests for clarification and/or missing documents or items at the submission or preliminary submission stage.

2. Notification to the commands about projects which are approved for design, in order to prevent major errors before submitting the forms to OSD. The subsequent submission to OSD is based on the annotated form sent to the District for design.

3. Inquiries about the status of the projects and approval or disapproval notification.

5 SUMMARY AND RECOMMENDATIONS FOR COMPUTER-ASSISTED PROCESSING OF DD FORM 1391

Summary

The processing of DD Form 1391 can be divided into the following steps:

1. PREPARATION—by the installation and command. Data sources used: PDB-1 and those cited in the checking steps.

2. CHECKING EXISTING DATA—mainly by MCE-P. Interaction is necessary with the installation command. Sources used: existing situation and reports based on existing situation such as DA Form 1709-R, Building Information Schedule, previous years' records.

3. CHECKING PROJECTED DATA—mainly by MCE-P. Sources used: ASIP and reports based on ASIP, such as DD Form 1657 and Tabulation of Existing and Required Facilities.

4. CHECKING REQUIREMENTS—based on the deficiency calculated from the difference between 2 and 3 above.

5. CHECKING TECHNICAL CRITERIA—by MCE and FE based on DOD 4270.1-M (or Quick Reference Charts) or related TMs, guidance letter, and internal SOPs or memoranda.

6. CHECKING COST ESTIMATE—by MCE and FE; interaction with installation is sometimes necessary. Sources used: AR 415-17, professional experience, and judgment.

7. ENGINEERING REVIEW—by all branches of MCE and divisions of FE, based on experience, professional judgment and, to some extent, written criteria.

8. NONTECHNICAL REVIEWS—by CRRC, OSD, and Congress.

9. MONITORING AND DOCUMENTATION—by MCE-P and MCP throughout steps 2 through 8. This consists of recording, routing, sorting, transcribing, filing, etc.

DD Form 1391 is prepared by the installation, based on functional requirements (PDB-I), with the approval of the command.

Except for the identification and narrative parts of DD Form 1391, the entries are based on four types of data sources:

1. Periodic data such as ASIP, which serves as the basis for Tabulations of Existing and Required Facilities and DD Form 1657.

2. Existing conditions reported in many forms, such as DA Form 1709-R and Building Information Schedule.

3. Technical Criteria, especially DOD 4270.1-M and the Quick Reference Charts, which must be updated and expanded to include other TMs (Appendix A).

4. Guidance letters, SOPs, etc. used as auxiliary binding references supplementing the technical criteria and procedures. These are based on current needs and recent experience.

The command assigns priority numbers to all its projects in order to give CRRC an indication of importance to command mission. In giving its grouping numbers, CRRC considers, in addition to the commands' priorities, other important factors such as the technical review comments, limited financial resources available, and current Army missions. Approval by CRRC is actually an authorization for the District to proceed with design. Approval by Congress entails the dual authorization and funding for the construction of the project.

Projects in SRCP, which are considered in this report, are normally projects which have advanced from the FYDP, IRCP, or even LRCP, although some are inserted on an emergency basis. The

requirements for a project are based on the deficiency between the existing and projected strength of an installation and on the need to replace existing substandard facilities, even though no change in strength is planned.

Checking DD Form 1391 is necessary to insure that it was prepared on the basis of current data, including the correct projected strength. This checking is required because of the relatively unstable nature of the data. The process consists of many steps of fact verification and validation of requirements. It is performed by MCE-P and is the most time-consuming part of DD Form 1391 verification.

Once the "requirements" stated in the form have been verified and the "deficiency" established as valid, technical checking of DD Form 1391 in the other branches of MCE is relatively systematic, since the given data are based on rather well-defined technical criteria and the data on DD Form 1391 correspond, at least initially, to functional requirements. Checking is not easy, however. It requires knowledge of the pertinent requirements of the specifications and familiarity with the many technical criteria references, as well as application of experience and professional judgment. Nevertheless, except for a few facility types (e.g., hospitals, dining halls, aviation facilities) which require special treatment, the work done consists of reviewing. In particular the reviewers make certain that provisions are made for situations and conditions not apparent to the person who prepared the form and may not have been an engineer. The work in this case does not involve as many details and criteria as the review of a final design or even a preliminary design.

Cost estimating, which has not been discussed in detail, is a relatively independent check in the sense that the quantities specified have passed several reviewers and are usually accepted as a basis for estimating. Furthermore, the criteria of AR 415-17 are firm in specifying the calculation of the estimated unit cost. The work required to check the estimates is, however, very extensive. The recently developed Empirical Cost Estimation program should alleviate this burden and will eventually be included in a larger DD Form 1391 processing package. Nevertheless, the task of comparing costs based on empirical data (AR 415-17) with those based on actual bids will still be required.

The most substantial amount of work is involved in the preparation, fact verification, and cost estimating procedures and in the clerical and communication problems that arise during these steps. The latter include maintenance of records, storage of files, monitoring of the movement of the form, and direction of inquiries and clarification requests among the installation and command levels and OCE.

Additional Remarks

This section focuses attention on several operations or steps in the processing of DD Form 1391 where, according to those who process the forms at OCE, delays, incompatibilities, or other irregularities sometimes occur. Some of the deficiencies are technical and could probably be avoided, possibly through computer-assisted processing; others have more complex or fundamental origins. The distinction between these two types of difficulties has yet to be fully investigated and is one key to successful continuation of this research.

Judgmental differences between the calculation performed by the preparer and the reviewer occur in 20 to 30 percent of the forms submitted. These differences are attributed to variations in the data and criteria used at preparation time and at reviewing time. Missions, policies, and projected strengths are being constantly updated, but changes filter slowly from upper to lower levels. Hence, for example, CRRC may not be aware of information known to OSD, MCE can only guess how CRRC will decide project priorities, and some installations may not have updated their tabulations of existing and required facilities by the time the DD Form 1391 must be prepared. While many of these differences stem from the nature of the process and are precisely the reasons for review by different levels, some of them can be prevented, particularly those which are related to widely used written criteria and data files.

Incompatibilities between the different parts of the form are mostly purely numeric and are directly related to the use of technical criteria.

The narrative parts of the field submissions, which are of great importance in defending the project before OSD and Congress, are invariably deficient and need almost total rephrasing due to language, style, faulty description, etc. These can be attributed to the fact that the preparing person does not translate the need for the project into a language which is both known and convincing to higher level officials reviewing his request. The final expressions on the

narrative parts should probably continue to be written by OCE officials using the initial expressions given by the installation as a basis.

The criteria specify different definitions of strength for different types of facilities. It would be desirable to select a standard formula for determining strength-related requirements or, at least, to consolidate some of the definitions and reduce the complexity of the problem.

While the form may be reviewed and changed several times, no indication of this is made on the form, except by the date. Addition of a revision number, date, and revising agency identification is highly desirable.

The forms are conveniently filed by command at OCE. The name of the command is not indicated in the form and should be added.

Reviewing DD Form 1391 should be a purely sequential process: technical review followed closely by CRRC review, processing by MCE including required consultation with the commands, submission to OSD. Presently, some operations which should be done in sequence are performed concurrently to save time.

While the most efficient sequence of technical review has yet to be determined, disruption of the current sequence of operations usually results in delay of the process. Although they are excluded from consideration here, emergency projects which dictate a rush review are major sources of sequence disruption.

The following are typical reasons for delays: missing the deadline for submission, faulty preparation, missing documents, and failure to obtain advance approval. Specialized reviews are also causes for delays as they usually involve coordination with external agencies, which may be time consuming.

Late submission of ENG Form 3086 may result in downscoping if a project has already been reviewed by OSD.

More information is needed on the communication between installation and command during the preparation stage.

Recommendations

Three broad areas for computer-assisted processing of DD Form 1391 have been identified: verification of facts and associated justification of requirements; on-line preparation, distribution and monitoring; on-line access to basic data for response to incidental queries.

Verification of Facts and Justification of Requirements

Data files and procedures can be developed for displaying the "Quantitative Data" needed in Block 23 of DD Form 1391 and, given the necessary "projected data" as input, for verifying the stated total requirement and checking that various specified capacities and technical parameters lie within ranges prescribed by the criteria documents. This portion of the system would be interactive, with certain calculations performed automatically, and would appear to the user much like the existing empirical cost estimator. It would include procedures to prompt the user for data entry, to update existing files and maintain update records (dates and names of persons performing updates), and to retrieve part or all of the data including, possibly, direct printing on blank copies of DD Form 1391. Provisions could also be made for recording comments and annotations, Detailed Justification Paragraphs, and Economic Analyses. These programs should be designed for eventual combination with the empirical cost estimator to form a single system of DD Form 1391 processing procedures.

Verification of the total requirement depends on strength projections from ASIP, which is Confidential and therefore cannot be maintained in an on-line computer system. However, since individual projections apart from the complete document are unclassified, selected data items can be entered as needed for processing. In the proposed application, ASIP data would not be retained in its original form, but would be converted directly into facility requirements according to the applicable definition of strength.

A few *projects* are classified. These would continue to be handled using manual procedures, although the benefits of on-line access to supporting data could still be realized.

Required unclassified data for the new procedures includes parts of the Building Information Schedule and Real Property Inventory which are already available in digital form; the Tabulation of Existing and Required Facilities, which would have to be digitized from existing printed tables or new report submittals; and Criteria Tables to be developed for this application from the Quick Reference Charts and criteria manuals. Eventually, selected data from DA Form 1709-R, DD Form 1657 and others might also be included, though this is not essential for the initial implementation. Procedures will be required for updating and maintaining these data bases once they are installed.

On-line Preparation, Distribution, and Monitoring of DD Form 1391

Early implementation of facilities to permit on-line preparation of DD Form 1391 by installation personnel is recommended. This will provide substantially greater long-range efficiency and cost savings than the implementation of checking procedures alone, and most of the necessary software will be required in any case.

Using programs discussed above, data would be collected interactively and stored in temporary files accessible only to the installation during the preliminary phases of form preparation. Selected quantitative data would be supplied and calculations performed automatically, and the user would be notified when criteria violations occurred. When problems arose, selected forms could be displayed on-line at command headquarters or OCE as an aid to communication. In conjunction with the form preparation routines, status-monitoring procedures would advise the user when necessary supporting documents were required. Through these devices, many unsatisfactory submittals would be eliminated at the source, and OCE personnel would be free to devote more of their efforts to "reviewing" instead of "checking."

Completed forms would be transferred electronically from their temporary locations into other files for immediate access by MACOM, OCE, or both, where they could be read on CRT devices or printed out for detailed study and revision.

After document submission, the status-monitoring program would continue to record such information as current version number, pending and completed reviews, requirements for supplementary documentation or review by outside agencies, and command and CRRC priority numbers. After approval, the final version of the DD Form 1391 could be kept in readily accessible storage (on- or off-line) for the life of the project and maintained in digital form for archival purposes indefinitely.

On-line Access to Basic Data for Response to Incidental Queries

Retrieval facilities should be provided for querying the various data files (BIS, TAB, DD Form 13[illegible] under review) directly in response to the frequent and unpredictable managerial information requirements which occur at all levels. Experience in many organizations has shown that substantial benefits, e.g., improved communication, can be achieved by providing rapid access to a single current and consistent set of data files for all users.

Thus it is recommended that the design of automated DD Form 1391 processing facilities should include in addition to basic fact, criteria and cost checking or computing procedures, facilities for on-line preparation and transmission of forms and on-line retrieval of information from the supporting data bases.

As currently envisioned, an overall DD Form 1391 processing program would include seven major functions (MONITOR, FORM PREPARATION, CRITERIA CHECK, EMPIRICAL COST ESTIMATE, DATA BASE UTILITY, STATUS MONITOR, and REPORT) and six master files of reference data (INSTALLATION IDENTIFICATION, CRITERIA AND FACILITY CATEGORIES, TAB, BIS/RPI, MCA PROGRAM, and EAM RECORDS).

It is recommended that after completion of an overall system design, a prototype should be assembled to validate procedures and obtain vital user feedback. A suitable vehicle for this purpose would contain the MONITOR, FORM PREPARATION, CRITERIA CHECK, and possibly EMPIRICAL COST ESTIMATE functions, an interactive data retrieval capability, and adequate data files to process DD Form 1391 submittals for bachelor housing facilities (listed under categories 721 through 724 in AR 415-28) at one or two selected installations.

ABBREVIATIONS AND SYMBOLS

ASIP	Army Stationing and Installation Plan
BIS	Building Information Schedule
BRC	Budget Review Committee
CRRC	Construction Requirements Review Committee
C/S	Chief of Staff
DA	Department of the Army
DOD	Department of Defense
FYDP	Five Year Defense Program
I&H	Installation and Housing (an internal division within OSD)
IRCP	Intermediate Range Construction Program
LRCP	Long Range Construction Program
MACOM	Major Army Command
MCA	Military Construction, Army
OCE	Office of the Chief of Engineers
OSD	Office of the Secretary of Defense
RPI	Real Property Inventory
SA	Secretary of the Army
SOP	Standard Operations Procedure
SRCP	Short Range Construction Program
TAB	Tabulation of Existing and Required Facilities
TSA	Troop Support Agency

The following symbols are all preceded by DAEN:

FE	Directorate of Facilities Engineering
MC	Directorate of Military Construction
MCC	Construction Division
MCC-A	Army Branch, Construction Division
MCE	Engineering Division
MCE-A	Structures Branch, Engineering Division
MCE-D	Advanced Technology Branch, Engineering Division
MCE-P	Planning Branch, Engineering Division
MCE-S	Specifications and Estimating Branch, Engineering Division
MCE-U	Utilities Branch, Engineering Division
MCP	Program, Planning, and Civil Preparedness Division
MCP-A	Planning Branch, Program, Planning, and Civil Preparedness Division
MCP-B	Program Branch, Program, Planning, and Civil Preparedness Division
ZC	Assistant Chief of Engineers
ZCI	Installation Planning Division, Ass't Chief of Engineers
ZCP	Program Division, Ass't Chief of Engineers

APPENDIX A:

REFERENCE MATERIAL

The following are direct references that should be read to support DD Form 1391 and EAM card submittals. They are listed in the order of importance.

Regulations

- AR 415-15 MCA Program Development
- AR 210-20 Master Planning for Permanent Army Installations
- AR 210-18 Bachelor Housing
- AR 415-20 Project Development and Design Approval
- AR 415-17 Empirical Cost Estimate for Military Construction
- AR 415-28 DA Facility Classes and Construction Categories

Criteria (periodic)

- DOD 4270.1-M Construction Criteria Manual
- TM 5-800-1 Construction Criteria for Army Facilities
- Program Guidance Letter
- Facility Criteria Quick Reference Chart
- MCE SOP
- MCE-P SOP
- MCE-A Architecture Section SOP

Data Sources (periodic)

- ASIP (Confidential)—Army Stationing and Installation Plan
- Tabulation of Existing and Required Facilities (Installation)
- (see forms DA 2369-1-R and DA 2369-2-R)
- Building Information Schedule and Real Property Inventory (see Form DA 3640)
- DD Form 1657—(Installation)
- DA Form 1709-R—(Installation)
- ENG Form 3086—(District)

The following are indirectly related or background references:

- AR 27-13 Economic Analysis of Proposed Army Investment
- AR 405-45 Inventory of Military Real Property
- AR 210-16 Bachelor Quarters—Officer, Enlisted and Civilian Employees
- AR 500-3 (C) Army Survival Measures (U)
- TM 5-800-3 Project Development Brochure, Part I
- TM 5-803-4 Planning of Army Aviation Facilities
- TM 5-843-1 Construction: Space and Planning Criteria for US Army Service Schools
- DD Form 1390—Project Listing
- DD Form 2369-1-R Tabulation of Existing and Required Facilities —Installation strength
- DD Form 2369-2-R Tabulation of Existing and Required Facilities —Facilities Requirements

The following are lists obtained from MCP-A and can be used as references for quantities and frequencies of project categories:

- MCA FY 75 Design Program (code 6100-6800), 19 Aug 74
- MCA Proposed FY 76 Appropriation (submitted to Congress)

1. by command
2. by categories
3. by element numbers.

APPENDIX B:

DD FORM 1391 PREPARATION DETAILS AND COMMENTS

This appendix summarizes instructions in AR 415-15 for preparation of DD Form 1391, with additional comments based on experience in processing the forms at OCE. A blank form is shown in Figure B1.

1. DATE—Currently the preparation date or the revision date is entered here. There is no way to know what edition it is or who made the revision. Adding a revision number is suggested. A log sheet listing the history and agencies making the revisions is also desirable.

2. FISCAL YEAR—No comment.

3. DEPARTMENT—ARMY (No comment).

4. INSTALLATION—The name entered as listed in DA Pamphlet No. 210-1. It is, however, desirable to list the command to which the installation belongs as well for communications purposes and because there may be a change of command. If the project is not on the installation, the name of the location must be added.

5. PROPOSED AUTHORIZATION—Amount being requested, excluding design.

6. PRIOR AUTHORIZATION—For project authorized in a prior year, fiscal year and public law designation must be entered; e.g., FY 75, P.L. 93-166.

7. CATEGORY CODE NUMBER—AR 415-28. Note: it is possible that projects under the same category must follow different sets of criteria (e.g., "permanent party" and "trainee" barracks).

8. PROGRAM ELEMENT NUMBER—Left blank initially; entry is made later by DA.

9. STATE/COUNTRY—Could be outside of the United States.

10. PROPOSED APPROPRIATION—Initially same as in block 5. It is reduced later if the amount approved for funding is less than block 5.

11. BUDGET ACCOUNT NUMBER—The applicable number from AR 37-102.

12. PROJECT NUMBER—A permanent number assigned by MCP-A. If this is not known, a temporary number prefixed by the letter "T" is entered. Rules on temporary number selection are cited in AR 415-15, par. 5-3g.

13. PROJECT TITLE—This box also includes a symbol for the type of project as defined by: NM (New Mission), CM (Current Mission), RM (Replacement and Modernization).

14. TYPE OF CONSTRUCTION—Check the appropriate box. See AR 210-8 for type definitions and DOD 4270.1-M for explanation.

15. TYPE OF WORK—NEW ADDITION, ALTERATION, CONVERSION, OTHER (refer to description in block 19).

16. REPLACEMENT—Check if applicable.

17. TYPE OF DESIGN

17a. Type is usually STANDARD in which case enter the DWG No. in 17c. If that is modified, follow by "M."

17b. Reserved for special structures (Spec Guide No. in 17c).

18. PHYSICAL CHARACTERISTICS OF PRIMARY FACILITY—For certain projects, not all entries are applicable.

18a. NUMBER OF BUILDINGS.

18b. NUMBER OF STORIES—only usable stories; if there is a mezzanine, it is described in block 19. If there is a basement, follow the number by * and explain in 19.

18c & 18d. These may be a list of widths and lengths or IRREG, for irregular shapes.

18e. DESIGN CAPACITY—Enter capacity applicable for the project category; e.g., number of occupants, number of seats, no. of vehicles. Notes: This must be compatible with need reflected in block 23 and with the construction criteria.

18f. GROSS AREA—Total area must comply with the criteria and be compatible with 18e. If it exceeds the allowances, it must be explained in block 25.

FOR OFFICIAL USE ONLY *(WHEN DATA IS ENTERED)*

1. DATE	2. FISCAL YEAR	MILITARY CONSTRUCTION PROJECT DATA	3. DEPARTMENT ARMY	4. INSTALLATION
5. PROPOSED AUTHORIZATION $	6. PRIOR AUTHORIZATION P.L.	7. CATEGORY CODE NUMBER	8. PROGRAM ELEMENT NUMBER	9. STATE/COUNTRY
10. PROPOSED APPROPRIATION $	11. BUDGET ACCOUNT NUMBER	12. PROJECT NUMBER	13. PROJECT TITLE	

SECTION A - DESCRIPTION OF PROJECT

14. TYPE OF CONSTRUCTION		16. PHYSICAL CHARACTERISTICS OF PRIMARY FACILITY			
a. PERMANENT		a. NO. OF BLDGS	b. NO. OF STORIES	c. LENGTH	d. WIDTH
b. SEMI-PERMANENT		e. DESIGN CAPACITY		f. GROSS AREA	
c. TEMPORARY		g. COOLING	CAP.	COST IS	
15. TYPE OF WORK		19. DESCRIPTION OF WORK TO BE DONE			
a. NEW FACILITY					
b. ADDITION					
c. ALTERATION					
d. CONVERSION					
e. OTHER *(Specify)*					
16. REPLACEMENT					
17. TYPE OF DESIGN					
a. STANDARD DESIGN					
b. SPECIAL DESIGN					
c. DRAWING NO.					

SECTION B - COST ESTIMATES

20. PRIMARY FACILITY	U/M	QUANTITY	UNIT COST	COST ($000)
			$	$
a.		( )		( )
b.		( )		( )
c.		( )		( )
d.		( )		( )
21. SUPPORTING FACILITIES				$
a.				( )
b.				( )
c.				( )
d.				( )
e.				( )
f.				( )
g.				( )
h.				( )
i.				( )
j.				( )
22. TOTAL PROJECT COST				$

SECTION C - BASIS OF REQUIREMENT

23 QUANTITATIVE DATA (U/M _____)		
a. TOTAL REQUIREMENT		
b. EXISTING SUBSTANDARD	( )	
c. EXISTING ADEQUATE		
d. FUNDED, NOT IN INVENTORY		
e. ADEQUATE ASSETS (c + d)		
	AUTHORIZED	FUNDED
f. UNFUNDED PRIOR AUTHORIZATION		
g. INCLUDED IN FY _____ PROGRAM		
h. DEFICIENCY (a − e − f − g)		
24 RELATED PROJECTS		

25. REQUIREMENT FOR PROJECT

DD FORM 1 OCT 70 1391 FOR OFFICIAL USE ONLY *(WHEN DATA IS ENTERED)* PAGE NO

Figure B1. Blank DD Form 1391.

18g. COOLING, CAPACITY, COST—AIR-COND, EVAP, MECH, VENT, etc.; cost is specified, in parens. ( ), ( ), ( ). It is included in the primary item and should not be added to the facility cost.

19. DESCRIPTION OF WORK TO BE DONE —May need additional sheet. The narrative should correspond to the breakdown of components in block 20.

20. COST ESTIMATES—U/M from AR 415-28. The first line is used only for facilities including a single component. Otherwise it is left blank and the cost contains the sum of the lines below. Certain components cannot be included with others; they must be independent. Unit Cost—if U/M is not applicable, LS is entered for Lump Sum. Cost—the cost and unit cost estimates must be in accordance with AR 415-17. The regulations list:

a. ITEMS that are usually included in the primary facility although they are of a "supporting" nature;

b. ITEMS that should not be financed by MCA appropriation and must not be included. This is covered by AR 37-108.

21. SUPPORTING FACILITIES—These should be listed in a specified order: Electrical, water and gas, demolition, recreation. They must all be outside the 5-foot line. Use additional sheets if necessary.

22. TOTAL of 20 and 21.

23. QUANTITATIVE DATA U/M—Must correspond to block 7 (AR 415-28).

23a. TOTAL REQUIREMENT—figure includes gross space allocation based on requirements. CALCULATION: (paragraph 3-1g)

(1) TYPE OF CONSTRUCTION—AR 200-18 defines type of construction by degree of permanence criteria: Permanent Construction—see DOD 4270.1-M. Others—TM 5-800-1.

(2) ALLOWABLE SPACE CRITERIA—DOD 4270.1-M and TM 5-800-1.

(3) STRENGTH BASIS

(a) PERMANENT CONSTRUCTION—use ASIP. Paragraph 5, page III of ASIP specifies what to do if the installation is not found in the general list.

(b) SEMIPERMANENT—use current strength to get total requirement from line 27 of DD Form 1657. Other categories require different listing (dental clinics—No. of chairs, etc.) Note: This normally exceeds the total in block 20.

23b. EXISTING SUBSTANDARD—Quantity of existing facilities determined to be "substandard" and incapable of adequate upgrading. For bachelor housing—line 10 of DD Form 1657.

23c. EXISTING ADEQUATE—No comment. 23b and 23c should include all space assigned and used to meet the total requirement. For bachelor housing (adequate includes substandard that can be upgraded) the figure equals the sum of lines 31, 34, and 35 in DD Form 1657.

23d. FUNDED NOT IN INVENTORY—Quantity of assets which are currently approved for construction, but are not yet included in current inventory.

23e. ADEQUATE ASSETS—Sum of 23c and 23d.

23f. UNFUNDED PRIOR AUTHORIZATION —Prior authorization not approved for funding by CONGRESS or other legislative bodies.

23g. INCLUDED IN FY PROGRAM—Authorized, funded.

23h. DEFICIENCY

AUTHORIZED:

(line a)	—	(line e)	—	(line f)	—	(line g)
total		adequate		unfunded prior auth.		included in current MCA

FUNDED: same entries as authorized

Note: Deficiency should agree with those explained in block 25. It should also be compatible with block 20.

24. RELATED PROJECTS—Title and number of projects mutually dependent on the requested construction.

25. REQUIREMENT FOR PROJECT—What is wanted, why is it needed, and what currently exists? What if not approved? Disposal (of old facilities)?

SPECIFY ADVANCE APPROVAL.

SPECIFY NEW START AUTHORITY.